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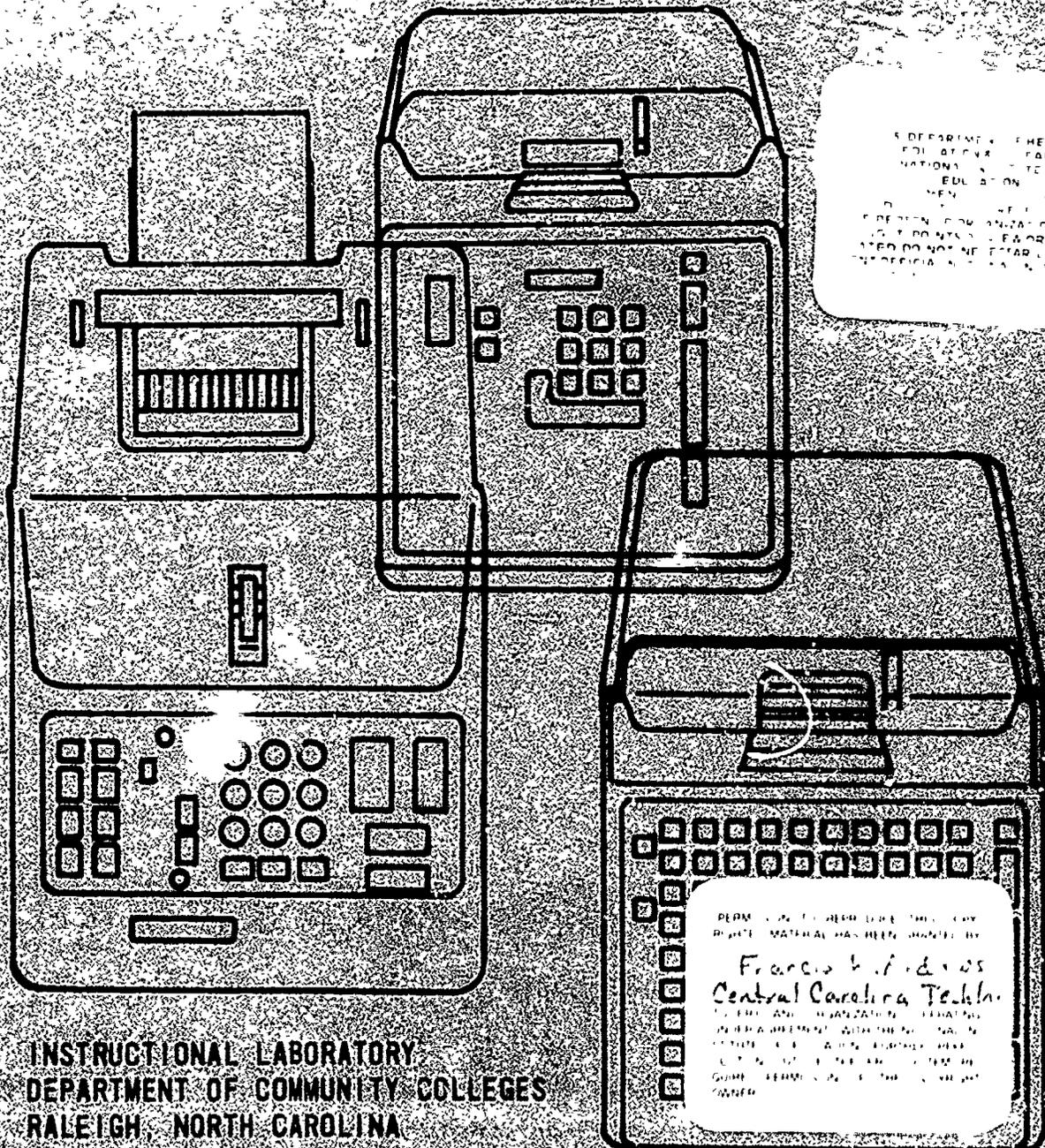
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ABSTRACT

The self-instruction office machines course provides both student's and teacher's manuals and includes, in the teacher's edition, scripts to be used with 21 instructional sound films for the machines covered. These may be used without the films as detailed operating instructions. The teacher's manual also contains instructions on operating each machine and pretests and posttests for specific machines. The student text includes a sample pretest, a section of problems and instructions, along with answers, and sample posttests. Machines covered are semiautomatic Monroe rotary calculator, fully automatic Monroe rotary calculator, fully automatic Friden rotary calculator, fully automatic Marchant rotary calculator, Underwood-Olivetti 10-key calculator, Victor 10-key calculator, Victor full keyboard adding-listing, Victor 10-key adding-listing, Burroughs 10-key adding-listing, and Olivetti electronic calculator. (MDW)

OFFICE MACHINES



U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL CENTER FOR EDUCATION
OFFICE OF TECHNICAL EDUCATION
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BUSINESS MACHINES

A Self-Instructional Course

by

Frances K. Andrews
Instructor
Central Carolina Technical Institute
Sanford, North Carolina

This programmed office machines text, instructor's manual, and 8mm (with sound) instructional films has been prepared for use in Office Machines (BUS 110). While the material has been copyrighted, permission has been given to the Department of Community Colleges for distribution to North Carolina technical institutes and community colleges.

This programmed office machines course covers the following machines:

- *Semi-automatic Monroe rotary calculator
- *Fully-automatic Monroe rotary calculator
- *Fully-automatic Friden rotary calculator
- *Fully-automatic Marchant rotary calculator
- *Underwood-Olivetti ten-key calculator
- *Victor ten-key calculator
- *Victor full keyboard adding-listing
- *Victor ten-key adding-listing
- *Burroughs ten-key adding-listing
- *Olivetti electronic calculator

Films: Twenty-one 8mm instructional films (with sound) have been prepared for use with this text. While only the original copy of the films, currently in use at Central Carolina Technical Institute, are presently available, CCTI will cooperate with other institutions in acquiring copies of these films. Schools interested in using these films are invited to visit CCTI to review the films for possible use in their course. While the films are not required to support the course, they are considered a valuable method of presentation.

Text: Each student text contains a sample pretest for the student who has had prior training on a specific machine, a section of problems and instructions are provided along with the answers at the end of each section, and a sample posttest for practice before taking the final test on that machine.

Instructor's manual: This manual contains instructions on the operation of each machine. It also provides from one to three pretests and posttests with answers to indicate if a student needs further work on a specific machine.

Scripts: Scripts give detailed instructions on the operation of each machine and can be used in addition to the instructional films. If the films are not used in this course, copies of these instructions can be distributed to students for their study.

T-BUS 110
(Programmed)

STUDENT EDITION

SELF-INSTRUCTIONAL COURSE

IN

BUSINESS MACHINES

August 1972

by

Frances K. Andrews

Instructor

Central Carolina Technical Institute

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INTRODUCTION

In a recent survey, it was found that 98 per cent of all office workers have machines available for calculations.

The student who develops a skill with machine computations will be greatly assisted regardless of his career objectives.

While a business machine operator is expected to perform routine computations at rapid rates of speed, a manager, an assistant, or a secretary will use business machines selectively as the need arises. For him the machine is a tool to help him compile data needed to define problems, analyze problems, report solutions.

The goals of this course are to give you a marketable skill, to give you experience on typical and actual business problems, and to give you the knowledge to apply business equipment to math-related studies.

Our first step in this office machines course will be to increase our vocabulary of numerical terms. Please take the pretest on the next page.

PRETEST

In the space provided, write one word that identifies the number beside the blank.

For example:

$$\begin{array}{r} 4 \\ + 4 \\ \hline 8 \end{array} \quad \text{sum}$$

8 _____ A	5 _____ D
- 4 _____ B	x 5 _____ E
_____	_____
4 _____ C	25 _____ F

$$3 \times 4 = 12$$

$$\text{_____ G} \times \text{_____ H} = \text{_____ I}$$

J _____	4 /	$\frac{6}{25}$	_____ K
.		$\frac{24}{1}$	_____ L
			_____ M

$$25 \div 5 = 5$$

$$\text{_____ N} \div \text{_____ O} = \text{_____ P}$$

4 _____ Q
+ 4 _____ R

8 _____ sum

Check your answers on the next page.

ANSWERS TO PRETEST

- A. Minuend
- B. Subtrahend
- C. Remainder (sometimes called difference)
- D. Multiplicand
- E. Multiplier
- F. Product
- G. Multiplier
- H. Multiplicand
- I. Product
- J. Divisor
- K. Quotient
- L. Dividend
- M. Remainder
- N. Dividend
- O. Divisor
- P. Quotient
- Q. Augend
- R. Addend

Did you identify all the numerical terms? If you did, GREAT!

Ask me for post test No. 1.

If you did not identify all the numerical terms, continue with this unit on the next page.

Objectives: Given four problems in division, addition, subtraction, and multiplication, the learner will locate and label the following terms:

1. Dividend
2. Divisor
3. Quotient
4. Remainder
5. Multiplicand
6. Multiplier
7. Product
8. Sum
9. Minuend
10. Subtrahend
11. Augend
12. Addend

As you proceed through this unit on office machines, you will read and hear many numerical terms in the instructional material. It is essential to your learning progress that you have a thorough knowledge of these numerical terms. For example, if you have a problem 45×8 and you are directed to depress the multiplicand on the keyboard, you must know which of the two numbers is the multiplicand.

Multiplicand:

The amount that is to be multiplied.

$$4 \times (3)$$

Multiplier:

The amount by which another number is multiplied.

$$(4) \times 3$$

Product:

The result of multiplying one amount by another.

$$5 \times 4 = (20)$$

Based upon what you have just learned, please complete the following exercises by identifying and labeling.

$$\underline{\hspace{2cm}} \ 4 \times 5 \ \underline{\hspace{2cm}} = 20 \ \underline{\hspace{2cm}}$$

The answers should be: Multiplier, multiplicand, and product.

$$\underline{\hspace{2cm}} \ 20 \times 10 \ \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

The answers should be: Multiplier, multiplicand, and product.

Remember, the answer is the product.

$$\begin{array}{r} 4 \ \underline{\hspace{2cm}} \ G \\ \times 6 \ \underline{\hspace{2cm}} \ H \\ \hline 24 \ \underline{\hspace{2cm}} \ I \end{array}$$

The answers should be: Multiplicand, multiplier, and product.

Dividend:

The amount to be divided by another amount.

$$4 \overline{) (14)}$$

Divisor:

The amount to be divided into another amount.

$$(4) \overline{) 14}$$

Quotient:

The result (or the answer) obtained when the dividend is divided by the divisor.

$$\begin{array}{r} (3) \\ 4 \overline{) 14} \\ \underline{12} \end{array}$$

Remainder:

The amount remaining when the divisor does not go into the dividend an even number of times; the remainder is also the answer when one number is subtracted from another number.

$$\begin{array}{r} 3 \\ 4 \overline{) 14} \\ \underline{12} \\ (2) \end{array}$$

After you have studied the definitions, please complete the following exercises:

$$A \quad \underline{\hspace{2cm}} \quad 4 \ / \ \frac{5}{20} \quad \frac{\underline{\hspace{2cm}}}{\underline{\hspace{2cm}}} \quad \begin{matrix} B \\ C \end{matrix}$$

The answers should be: Divisor, quotient, and dividend.

$$\underline{\hspace{2cm}} \quad 15 \div 5 \quad \underline{\hspace{2cm}} = 3 \quad \underline{\hspace{2cm}}$$

The answers should be: Dividend, divisor, and quotient.

$$G \quad \underline{\hspace{2cm}} \quad 4 \ / \ \frac{6}{25} \quad \frac{\underline{\hspace{2cm}}}{\underline{\hspace{2cm}}} \quad \begin{matrix} H \\ I \end{matrix}$$

$$\quad \quad \quad \frac{24}{1} \quad \underline{\hspace{2cm}} \quad J$$

The answers should be: Divisor, quotient, dividend, and remainder.

Sum:

The answer when one number is added to another number or to several other numbers.

Example: $4 + 4 = 8$ sum

7
8
9
24 sum

Minuend:

The larger amount in a subtraction problem.

Subtrahend:

The small amount in a subtraction problem.

Example: 25 Minuend
 - 10 Subtrahend
 15 Remainder

Remember, when one number is subtracted from another, the answer is also called the difference.

Augend:

The number to which another number is to be added.

Addend:

The number or numbers added to the augend.

Example: 4 Augend
 4 Addend
 5 Addend
 9 Addend
 22 Sum

EXERCISE

Fill in blanks, naming numerical terms.

$$\begin{array}{r} 4 \\ + 4 \\ \hline 8 \end{array} \quad \underline{\hspace{2cm}} \quad \text{A}$$

The answer is sum.

$$\begin{array}{r} 4 \\ + 4 \\ \hline 4 \end{array} \quad \underline{\hspace{2cm}} \quad \text{B}$$
$$\begin{array}{r} 4 \\ + 4 \\ \hline 4 \end{array} \quad \underline{\hspace{2cm}} \quad \text{C}$$
$$\begin{array}{r} 4 \\ + 4 \\ \hline 4 \end{array} \quad \underline{\hspace{2cm}} \quad \text{D}$$

12

The answers are: augend, addend, and addend.

$$4 + 4 = \underline{\hspace{2cm}} \quad \text{E}$$

The answer is sum.

$$\begin{array}{r} 7 \\ - 2 \\ \hline 5 \end{array} \quad \underline{\hspace{2cm}} \quad \text{F}$$
$$\begin{array}{r} 7 \\ - 2 \\ \hline 5 \end{array} \quad \underline{\hspace{2cm}} \quad \text{G}$$
$$\begin{array}{r} 7 \\ - 2 \\ \hline 5 \end{array} \quad \underline{\hspace{2cm}} \quad \text{H}$$

The answers are: minuend, subtrahend, and remainder.

$$14 - 2 = 12$$

$$\underline{\hspace{2cm}} \quad \text{I} - \underline{\hspace{2cm}} \quad \text{J} = \underline{\hspace{2cm}} \quad \text{K}$$

The answers are: minuend, subtrahend, and remainder.

At this point, it would probably be helpful if you took the sample post test on the next page. If you feel that you have mastered the numerical terms, ask me for the post test. If not, please review the exercises before taking the post test.

SAMPLE POST TEST

In the space provided, write one word that identifies the number beside the blank.

For example:

$$\begin{array}{r} 4 \\ + 4 \\ \hline 8 \end{array} \quad \text{sum}$$

8 _____ A

5 _____ D

4 _____ G

- 4 _____ B

x 5 _____ E

+ 4 _____ H

4 _____ C

25 _____ F

8 sum

3 x 4 = 12

_____ I x _____ J = _____ K

$$\begin{array}{r} 0 \text{ _____ } 4 \ / \ \begin{array}{r} 6 \\ 25 \\ \hline 24 \\ 1 \end{array} \end{array} \quad \begin{array}{l} \text{P} \\ \text{Q} \\ \text{R} \end{array}$$

25 ÷ 5 = 5

_____ L ÷ _____ M = _____ N

ANSWERS TO SAMPLE POST TEST

- A. Minuend
- B. Subtrahend
- C. Remainder (sometimes called difference)
- D. Multiplicand
- E. Multiplier
- F. Product
- G. Augend
- H. Addend
- I. Multiplier
- J. Multiplicand
- K. Product
- L. Dividend
- M. Divisor
- N. Quotient
- O. Divisor
- P. Quotient
- Q. Dividend
- R. Remainder

You need not hand in any answer sheets, as the correct answer will be given to you beneath each problem. I urge you to work the problem write the answer down, and then check your answer. It is a good idea to cover the key until you are ready to verify your answer. If the answer is correct, proceed to the next problem. If it is not, go over the problem again step by step to determine where you made an error. Possible errors will be pointed out to you as you go along.

Some answers should be rounded off to five decimal places, some answers should be carried to five places, some answers should be rounded to two places, etc. These instructions will be given for each kind of machine.

For example, if your answer is 45.4513789, rounded to five places, it would be 45.45138; 45.1345748 would be rounded off to 45.13457. If the sixth digit is a five or higher, the fifth digit will be increased to the next highest number. If the sixth digit is a four or lower, the fifth digit remains the same. Caution: any problem that involves several steps should not be rounded off until the final operation.

Let's see if you understand how to round off decimal places by working the next few problems.

		Answer (Cover the Key)
1.	147.489832 _____	147.48983
2.	497.1983210 _____	497.19832
3.	1978.3410976 _____	1978.34110
4.	61.4785479 _____	61.47855
5.	\$415.6594 _____	\$415.66
6.	\$19.7666 _____	\$ 19.77
7.	\$214.2145 _____	\$214.21
8.	\$99.4125 _____	\$ 19.41

GETTING READY FOR WORK

As you work with these four electric machines, always be sure that the cord is properly plugged into the outlet and into the machine.

At the end of the working session, the machine should be unplugged and recovered with the cord wrapped around the machine. This same practice should be continued when you start to work in an office so that the machine you are using will be protected.

The working papers, or workbook in this case, should be placed in front of you to the left of the machine; and the machine should be at a slight angle to your right.

MOVING MACHINES

To avoid back injury and possible damage to the machine, please use the cart in the classroom to move the machines.

CHANGING RIBBONS AND INSERTING NEW PAPER TAPE

Please read the directions in the manufacturers' manuals, which are in the classroom, when you need to change a ribbon or put new paper into the listing machines.

Most manufacturers provide these operating manuals without charge. When you begin a new job, you should ask your supervisor for the manual for your particular machine. Even office machines of the same make and model sometimes have different features.

REPAIRS

Even the most careful machine operator will sometimes experience some mechanical difficulty. Please exercise caution when using one of the machines. Avoid depressing two operational keys at the same time, because this will cause the machine to lock.

If your machine becomes inoperative, we need to get it repaired right away. Please fill out a request for repair service form and give it to me. A sample request for repair service form is on the next page, and these forms will be found in the back of this workbook.

In order to help me evaluate this program, I need your help in two areas.

1. I need to know how much time you spend on any one machine so that an adjustment can be made if one is warranted, so please keep a record on the time sheets found on page 159 in the back of this workbook.
2. You will be asked to fill out an evaluation sheet at the end of each unit, so please make note of any difficulties you encounter.

REQUEST FOR REPAIR SERVICE

Date

(Give a full description. If it is a semi-automatic Monroe rotary calculator, for example, write that in this space.)

(Description of machine)
==

Equipment Number

(This can be found on a red sticker usually on the back or side of the machine.)

(Give any details that will help serviceman locate the difficulty.)

(Nature of problem)
==

(Person reporting difficulty should sign here.)

Name

Now, about grades. An objective is written at the beginning of each section or unit telling you exactly what you should be able to do at the end of each unit. If your post test shows you have met the stated objectives, your grade on that particular unit will be "A". If you are unsuccessful and must take a second test, your grade for that particular unit will be "B". If you are unsuccessful a second time and must take a third test, your grade on that particular unit will be "C". Any subsequent tests will also warrant a grade of "C".

So you can see that it will be to your advantage to be reasonably sure that you are ready for the test. The only way you can get any grade other than an "A" is to take your post test too soon. Four grades will be given: "A", "B", "C", and Incomplete.

There will be five units to be tested, and these five units are the five machines on which you will become skilled:

1. Ten-key adding-listing machine
2. Full-key adding-listing machine
3. Ten-key calculator
4. Rotary calculator
5. Electronic calculator

At the beginning of each separate unit, that is, each machine, you should take the pretest to see if you need to complete the course of study on that particular machine.

Since the time element is very important in the operation of machines, you should work as quickly as possible.

Now, with all the preliminary information out of the way, you are ready to begin.

These four units may be done in any order, such order probably being determined by availability of machine.

Select the machine on which you wish to begin and turn to that section for further instructions. The page numbers for each unit are shown in the table of contents.

TEN-KEY CALCULATOR

21

25

TEN-KEY CALCULATOR

The ten-key calculator combines features of the rotary calculator and the ten-key adding machine. It multiplies and divides automatically and provides a printed tape.

The touch system provides for rapid entry of numbers into the printing calculator.

There are several makes of printing calculators on the market, and we have two of these in this class--the Victor and the Olivetti-Underwood. The skill you will acquire on either of these machines can be transferred to another make with no difficulty.

The objective is for you to work correctly 57 problems out of 60 in 45 minutes (95% accuracy). Additional 10 minutes are allowed on the Victor.

These problems will consist of:

1. Addition, subtraction, multiplication, and division of whole numbers and decimals.
2. Multi-factor multiplication.
3. Accumulated multiplication.
4. Multiplication of constants.
5. Computation of percentages of increases and decreases.

Perhaps some of you who have had office experience or have studied office machines in high school already know how to operate a printing calculator. At this point, you should take the pretest on the next three pages to see if you need further instruction and practice on the ten-key calculator.

PRETEST FOR TEN-KEY CALCULATOR

Time yourself for 45 minutes, (55 if you are using a Victor). Work quickly. Work each problem one time. If you finish in less than 45 (or 55) minutes, use the remaining time to check your work.

1. Round cents off to two decimal places.
2. Carry percentages out to two decimal places.
3. Round all products off to five decimal places.
4. Carry all division problems out to five decimal places.
5. Punctuate all answers with commas and decimal points.
6. Indicate special notations in answers; for example, Cr., %.

PRETEST FOR TEN-KEY CALCULATOR

1.	4.78	2.	.2576	3.	4.785	5.	425.75	6.	725.72
	4.321		- 4.55		<u>.25</u>		<u>- 300.89</u>		<u>- 981.45</u>
	64.89		17.895		ST				
	7.04		.255						
	<u>3.215</u>		<u>-24.5</u>	4.	8.557				
					<u>19.25</u>				

7.	1,924.20	8.	2,476.10	9.	455.15	10.	1,228.76
	<u>- 1,245.19</u>		<u>- 3,248.70</u>		455.15		1,228.76
					455.15		1,228.76
					29.85		704.20
					29.85		704.20
					<u>29.85</u>		<u>1,228.76</u>

11. $195 \times 49 =$ _____
12. $45 \times 78 =$ _____
13. $13 \times 85 =$ _____
14. $127 \times 95 =$ _____
15. $49 \times 27 =$ _____
16. $17.5 \times 4.85 =$ _____
17. $35 \times 29.5 =$ _____
18. $1.75 \times 18.55 =$ _____
19. $2.78 \times 21.4 =$ _____
20. $17.55 \times 3.4 =$ _____
21. $15 \times 21 \times 89 \times 44 =$ _____
22. $28 \times 64 \times 144 =$ _____
23. $114 \times 21 \times 87 =$ _____
24. $25 \times 19 \times 21 \times 6 =$ _____
25. $128 \times 45 \times 17 =$ _____

26.	16×29	27.	7.75×9.4	28.	1.75×7.85
	37×45		$24.98 \times .55$		$.45 \times 9.9$
	<u>75×94</u>		<u>3.5×9.6</u>		<u>1.95×27.5</u>

29. 175 lbs. @ \$1.95 = _____

30. 80 lbs. @ \$1.95 = _____

31. 122 lbs. @ \$1.95 = _____

32. 79 lbs. @ \$1.95 = _____

33. 117 lbs. @ \$1.95 = _____

34. 402 doz. @ \$.75 = _____

35. 127 doz. @ \$.75 = _____

36. 19 doz. @ \$.75 = _____

37. 322 doz. @ \$.75 = _____

38. 105 doz. @ \$.75 = _____

39. $1,522 \div 75 =$ _____

40. $725 \div 99 =$ _____

41. $1,428 \div 17 =$ _____

42. $6,483 \div 178 =$ _____

43. $17,402 \div 508 =$ _____

44. $105.245 \div 75 =$ _____

45. $92.75 \div 2.5 =$ _____

46. $12.15 \div .65 =$ _____

47. $45 \div 495.25 =$ _____

48. $14 \div 40.55 =$ _____

SALES COMPARISON

<u>Month</u>	<u>Last Year</u>	<u>This Year</u>	<u>Amount of Increase or Decrease</u>	<u>Percentage + or -</u>
January	\$12,500	\$14,275		49
February	9,750	11,206		50
March	13,475	12,222		51
April	15,780	15,900		52
May	20,470	18,924		53
June	14,320	19,208		54
July	15,425	18,905		55
August	17,425	15,429		56
September	21,740	19,207		57
October	30,204	27,408		58
November	24,701	29,324		59
December	48,609	39,425		60

ANSWERS TO PRETEST FOR TEN-KEY CALCULATOR

1. 84.246	27. 120.1890	39. 20.29333
2. 10.6424 Cr.	28. 71.8175	40. 7.32323
3. 5.035	29. \$341.25	41. 84
4. 32.842	30. \$156.00	42. 36.42134
5. 124.86	31. \$237.90	43. 34.2559
6. 255.73 Cr.	32. \$154.05	44. 1.40326
7. 679.01	33. \$228.15	45. 37.1
8. 772.60 Cr.	34. \$301.50	46. 18.6923
9. 1,4550.00	35. \$95.25	47. .09086
10. 6,323.44	36. \$14.25	48. .34525
11. 9,555	37. \$241.50	
12. 3,510	38. \$78.75	
13. 1,105	Amount of Increase or Decrease Percentage + or -	
14. 12,065	49. +\$1,775	+14.2%
15. 1,323	50. +\$1,456	+14.93%
16. 84.875	51. -\$1,253	- 9.29%
17. 1,032.5	52. +\$120	+ .76%
18. 32.4625	53. -\$1,546	- 7.55%
19. 59,492	54. +\$4,888	+34.13%
20. 59.67	55. +\$3,480	+22.56%
21. 1,233,540	56. -\$1,996	-11.45%
22. 258,048	57. -\$2,533	-11.65%
23. 208,278	58. -\$2,796	- 9.25%
24. 59,850	59. +\$4,623	+18.71%
25. 97,920	60. -\$9,184	+18.89%
26. 9,179		

If the pretest indicates that the stated objective has been met, ask me for the post test.

If the pretest indicates that further study and practice would be helpful, select one of the ten-key calculators in your classroom and have it in front of you as you view Film No. 6 and listen to Tape No. 6 if the machine you select is an Olivetti-Underwood, or Film No. 7 and Tape No. 7 if the machine you select is a Victor.

PROBLEMS FOR TEN-KEY CALCULATOR

Number all Addition Problems

Answers

Addition

1. 4.56	2. 7.89	3. 4.21
7.89	.45	5.78
1.23	3.45	2.17
1.47	.78	4.03
2.58	.89	2.41
<u>3.69</u>	<u>2.45</u>	<u>17.25</u>

- 1. 21.42
- 2. 15.91
- 3. 35.85
- 4. 116.01
- 5. 417.76
- 6. 238.32
- 7. 20.72
- 8. 45.04
- 9. 41.65
- 10. 57.6607
- 11. 24.7935
- 12. 274.5915
- 13. 20.036
- 14. 30.334
- 15. 22.926
- 16. 56.008
- 17. 48.595
- 18. 46.2555

REMEMBER TO USE TOUCH SYSTEM AS
DEMONSTRATED IN INSTRUCTIONAL TAPE

4. 7.00	5. 27.01	6. 40.01
30.00	300.00	100.07
19.01	21.00	19.99
27.00	17.95	47.25
9.00	32.55	30.00
<u>24.00</u>	<u>19.25</u>	<u>1.00</u>

- 7. $7.50 + 5.02 + 3.25 + 4.95 =$
- 8. $21.95 + 15.70 + 4.15 + 3.24 =$
- 9. $12.95 + 14.05 + 10.90 + 3.75 =$

10. 4.25	11. 4.19	12. 1.00	13. 1.75
.17	.2545	17.95	13.955
1.5	3.215	3.214	2.041
3.0507	12.97	.1275	.95
3.19	3.214	250.75	1.10
<u>45.5</u>	<u>.95</u>	<u>1.55</u>	<u>.24</u>

BE SURE TO KEEP
DECIMALS ALIGNED

14. 2.44	15. .25	16. .97	17. 10.95	18. 2.19
.17	7.80	14.21	14.80	22.155
3.75	9.125	9.75	.25	.28
1.974	.759	4.378	7.5	.4355
21.75	4.012	24.95	14.745	19.21
<u>.25</u>	<u>.98</u>	<u>1.75</u>	<u>.35</u>	<u>1.985</u>

If you have already worked on the ten-key adding-listing machine, you may skip this page as it is designed to facilitate mastery of the touch system.

Addition

Answers

1. 22 44 33 11 <u>55</u>	2. 47 58 69 41 <u>52</u>	3. 63 78 89 45 <u>56</u>	4. 12 23 44 45 <u>47</u>	1. 165
5. 112 233 444 778 <u>789</u>	6. 455 456 654 546 <u>787</u>	7. 123 456 789 321 <u>654</u>	8. 987 147 258 369 <u>741</u>	2. 267
9. 852 963 789 456 <u>123</u>	10. 147 789 456 321 <u>741</u>	11. 456 789 321 987 <u>654</u>	12. 123 897 321 789 <u>456</u>	3. 331
13. 582 471 639 123 <u>321</u>	14. 789 987 147 741 <u>852</u>	15. 258 123 456 789 <u>987</u>	16. 456 654 564 546 <u>664</u>	4. 171
				5. 2,356
				6. 2,898
				7. 2,343
				8. 2,502
				9. 3,183
				10. 2,454
				11. 3,207
				12. 2,586
				13. 2,136
				14. 3,516
				15. 2,613
				16. 2,884

Subtraction

1. 21.50 - 9.75	2. 17.95 - 8.79	3. 4.21 - 3.17
--------------------	--------------------	-------------------

YOUR CALCULATOR WILL INDICATE A CREDIT
BALANCE WITH A "C" BESIDE OF THE TOTAL

4. 19.21 - 45.98	5. 198.50 - 250.98	6. 201.87 - 424.20
---------------------	-----------------------	-----------------------

7. 325.98 - 495.42	8. 475.91 - 629.89	9. 498.70 - 250.42
-----------------------	-----------------------	-----------------------

10. 4.97 15.81 - 25.40 - 19.89 3.25 <u>10.91</u>	11. 4.25 7.91 - 2.30 - 7.25 9.28 <u>14.45</u>	12. 21.50 18.95 401.30 - 225.49 14.20 <u>- 195.31</u>
---	--	--

13. 195.40 - 20.50 <u>27.81</u>	14. 4.87 - 2.21 <u>4.90</u>	15. - 24.98 - 3.20 <u>7.42</u>
---------------------------------------	-----------------------------------	--------------------------------------

Answers

- 1. 11.75
- 2. 9.16
- 3. 1.04
- 4. 26.77 Cr.
- 5. 52.48 Cr.
- 6. 222.33 Cr.
- 7. 169.44 Cr.
- 8. 153.98 Cr.
- 9. 248.28
- 10. 10.35 Cr.
- 11. 26.34
- 12. 35.15
- 13. 202.71
- 14. 7.56
- 15. 20.76 Cr.

Subtotals

16. 521.50
401.90
851.65
S

3.21
19.85
327.95
T

19. 3.21
14.95
21.98
S

- 4.88
-26.42
1.77
T

17. 51.95
417.30
14.89
S

3.21
19.85
29.75
T

20. 24.32
17.95
104.62
S

- 2.40
-13.20
4.01
T

18. 27.98
14.75
- 22.30
S

24.80
- 10.99
- 3.21
T

21. 4.98
31.24
- 7.44
S

40.21
-58.77
3.42
T

Answers

16. 1,775.05 S
2,126.06 T

17. 484.14 S
536.95 T

18. 20.43 S
31.03 T

19. 40.14 S
10.61 T

20. 146.89 S
135.30 T

21. 28.78 S
13.64 T

22. 188.19

23. 3,633.39

24. 1,644.84

25. 1,983.40

26. 283.30

27. 474.15

28. 7,062.46

29. 1,265.50

30. 1,000.01

Repeated Numbers

22. 44.95
44.95
44.95
17.78
17.78
17.78

25. 175.98
175.98
407.86
407.86
407.86
407.86

28. 2334.80
2334.80
2334.80
19.87
19.87
18.32

23. 421.95
421.95
421.95
789.18
789.18
789.18

26. 27.55
25.45
25.45
25.45
89.70
89.70

29. 11.95
11.95
407.24
407.24
407.24
19.88

24. 395.77
395.77
395.77
395.77
30.88
30.88

27. 79.50
79.50
78.55
78.55
78.55
79.50

30. 4.95
13.87
13.87
322.44
322.44
322.44

Multiplication

- | | |
|-----------------------|------------------------|
| 1. $407 \times 325 =$ | 2. $391 \times 425 =$ |
| 3. $417 \times 89 =$ | 4. $489 \times 625 =$ |
| 5. $495 \times 18 =$ | 6. $35 \times 22 =$ |
| 7. $149 \times 386 =$ | 8. $722 \times 405 =$ |
| 9. $117 \times 325 =$ | 10. $318 \times 425 =$ |

BE SURE TO PUNCTUATE ANSWERS

- | | |
|-------------------------|-------------------------|
| 11. $175 \times 302 =$ | 12. $315 \times 804 =$ |
| 13. $375 \times 615 =$ | 14. $1718 \times 205 =$ |
| 15. $4021 \times 895 =$ | 16. $8099 \times 725 =$ |
| 17. $324 \times 895 =$ | 18. $705 \times 358 =$ |
| 19. $795 \times 925 =$ | 20. $894 \times 305 =$ |
| 21. $24 \times 19 =$ | 22. $718 \times 405 =$ |
| 23. $321 \times 895 =$ | 24. $416 \times 298 =$ |
| 25. $401 \times 798 =$ | 26. $300 \times 600 =$ |
| 27. $494 \times 326 =$ | |

Answers

- | | |
|-----|-----------|
| 1. | 132,275 |
| 2. | 166,175 |
| 3. | 37,113 |
| 4. | 305,625 |
| 5. | 8,910 |
| 6. | 770 |
| 7. | 57,514 |
| 8. | 292,410 |
| 9. | 38,025 |
| 10. | 135,150 |
| 11. | 52,850 |
| 12. | 253,260 |
| 13. | 230,625 |
| 14. | 352,190 |
| 15. | 3,598,795 |
| 16. | 5,871,775 |
| 17. | 289,980 |
| 18. | 252,390 |
| 19. | 735,375 |
| 20. | 272,670 |
| 21. | 456 |
| 22. | 290,790 |
| 23. | 287,295 |
| 24. | 123,968 |
| 25. | 319,998 |
| 26. | 180,000 |
| 27. | 161,044 |

Multiplication of Decimals

Answers

1. $7.5 \times 3.4 =$

2. $3.9 \times 7.8 =$

REMEMBER, THE SUM OF THE DECIMALS IN THE MULTIPLIER AND THE MULTIPLICAND EQUALS THE NUMBER OF DECIMAL PLACES IN THE PRODUCT.

3. $4.5 \times 8.05 =$

4. $21.5 \times 3.075 =$

5. $4.91 \times 3.87 =$

6. $4.95 \times 4.03 =$

7. $72.4 \times 3.94 =$

8. $9.75 \times 3.24 =$

9. $3.15 \times 8.04 =$

10. $2.77 \times 8.25 =$

11. $4.5 \times 7.4 =$

12. $10.07 \times 14 =$

13. $2.75 \times 16.5 =$

14. $.372 \times 95 =$

15. $17.5 \times 19 =$

16. $7.95 \times 4.25 =$

17. $13.7 \times .99 =$

18. $31.6 \times 2.88 =$

19. $2,932 \times 4.5 =$

20. $17.5 \times 84 =$

21. $3.05 \times 25 =$

1. 25.5

2. 30.42

3. 36.225

4. 66.1125

5. 19.0017

6. 19.9485

7. 285.256

8. 31.59

9. 25.326

10. 22.8525

11. 33.3

12. 140.98

13. 45.375

14. 35.340

15. 332.5

16. 33.7875

17. 13.563

18. 91.008

19. 13,194

20. 1,470

21. 76.25

Accumulated Multiplication

1. 16×24
 18×19
 45×57

2. 705×19
 75×2
 54×83

3. 40×15
 17×95
 305×82

4. 107×195
 302×24
 254×78

5. 25×89
 17×42
 21×199

6. 45×18
 64×345
 86×12

Answers

1. 3,291
2. 18,027
3. 27,225
4. 47,925
5. 7,118
6. 23,922
7. 70.2325
8. 140.5976
9. 27.9460
10. 38.5487
11. 660.525
12. 428.0725
13. 127.3685
14. 174.2025
15. 5,882.2748

Accumulative Multiplication with Decimals

REMEMBER TO WORK AROUND FIXED DECIMALS

7. 1.95×3.2
 17.24×3.25
 1.75×4.55

8. 3.24×8.09
 7.9×3.78
 18.7×4.52

9. 7.88×3.15
 $.40 \times .16$
 2.04×1.5

10. $.75 \times 4.03$
 1.825×3.7
 5.429×5.3

11. 3.60×40
 19.5×11.8
 9.5×30.15

12. 85×4
 $.45 \times 4.05$
 17.25×5

13. 2.5×17.55
 10.7×3.245
 6.85×7.12

14. 7.5×4.05
 13.4×8.95
 7.9×3.025

15. 45.15×89
 1.04×1.37
 74.5×25

Multiplying ConstantsAnswers

- | | |
|-------------------------------|--------------|
| 1. $475 \times 125 =$ | 1. 59,375 |
| 2. $475 \times 302 =$ | 2. 143,450 |
| 3. $475 \times 790 =$ | 3. 375,250 |
| 4. $475 \times 219 =$ | 4. 104,025 |
| 5. $475 \times 22 =$ | 5. 10,450 |
| 6. $14 \times 221 =$ | 6. 3,094 |
| 7. $175 \times 221 =$ | 7. 38,675 |
| 8. $85 \times 221 =$ | 8. 18,785 |
| 9. $75 \times 221 =$ | 9. 16,575 |
| 10. $118 \times 221 =$ | 10. 26,078 |
| 11. 27 yds at \$1.50 per yd = | 11. \$40.50 |
| 12. 15 yds at \$1.50 per yd = | 12. \$22.50 |
| 13. 85 yds at \$1.50 per yd = | 13. \$127.50 |
| 14. 97 yds at \$1.50 per yd = | 14. \$145.50 |
| 15. 22 yds at \$1.50 per yd = | 15. \$33.00 |
| 16. 95 lbs at \$1.29 per lb = | 16. \$122.55 |
| 17. 70 lbs at \$1.29 per lb = | 17. \$90.30 |
| 18. 25 lbs at \$1.29 per lb = | 18. \$32.25 |
| 19. 19 lbs at \$1.29 per lb = | 19. \$24.51 |
| 20. 40 lbs at \$1.29 per lb = | 20. \$51.60 |

Multiplying Constants ContinuedAnswers

21. 175 pr. at \$7.95 pr. =
22. 400 pr. at \$7.95 pr. =
23. 75 pr. at \$7.95 pr. =
24. 304 pr. at \$7.95 pr. =
25. 221 pr. at \$7.95 pr. =

26. 25 hrs. at \$2.25 an hr. =
27. 30 hrs. at \$2.25 an hr. =
28. 19 hrs. at \$2.25 an hr. =
29. 24 hrs. at \$2.25 an hr. =
30. 35 hrs. at \$2.25 an hr. =

31. 19 doz. at \$.75 a doz. =
32. 244 doz. at \$.75 a doz. =
33. 175 doz. at \$.75 a doz. =
34. 306 doz. at \$.75 a doz. =
35. 85 doz. at \$.75 a doz. =

36. 35 ft. at \$.17 per ft. =
37. 175 ft. at \$.17 per ft. =
38. 204 ft. at \$.17 per ft. =
39. 19 ft. at \$.17 per ft. =
40. 495 ft. at \$.17 per ft. =

21. \$1,391.25
22. \$3,180.00
23. \$ 596.25
24. \$2,416.80
25. \$1,756.95
26. \$ 56.25
27. \$ 67.50
28. \$ 42.75
29. \$ 54.00
30. \$ 78.75
31. \$ 14.25
32. \$ 183.00
33. \$ 131.25
34. \$ 229.50
35. \$ 62.25
36. \$ 5.95
37. \$ 29.75
38. \$ 34.68
39. \$ 3.23
40. \$ 84.15

Multi-Factor Multiplication

Answers

1. $4 \times 10 \times 8 \times 14 =$
2. $75 \times 13 \times 4 \times 7 =$
3. $70 \times 8 \times 3 =$
4. $14 \times 41 \times 125 \times 3 =$
5. $23 \times 31 \times 27 \times 83 =$

6. $9 \times 18 \times 35 =$
7. $14 \times 6 \times 802 =$
8. $82 \times 64 \times 237 =$
9. $314 \times 313 \times 7 =$
10. $38 \times 78 \times 25 =$

11. $.17 \times 2.01 \times 1.25 =$
12. $1.5 \times .75 \times .24 =$
13. $8.19 \times 15. \times 1.40 =$
14. $1.50 \times 2 \times .7 =$
15. $.17 \times 9 \times 9.9 =$

16. $2.25 \times 4 \times .89 =$
17. $64.5 \times 24 \times 9.30 =$
18. $8.96 \times 45 \times .50 =$
19. $17.2 \times 85 \times 45.50 =$
20. $2.35 \times 49 \times .25 =$

1. 4,480
2. 27,300
3. 1,680
4. 215,250
5. 1,597,833
6. 5,670
7. 67,368
8. 1,243,776
9. 687,974
10. 74,100
11. .42713
12. .27
13. 171.99
14. 2.1
15. 15.147
16. 8.01
17. 14,396.4
18. 201.6
19. 66,521
20. 28.7875

Division

1. $1795 \div 25$

2. $1400 \div 202$

REMEMBER TO CARRY ALL DIVISION
PROBLEMS TO FIVE DECIMAL PLACES

3. $245 \div 18$

4. $1037 \div 802$

5. $2375 \div 99$

6. $725 \div 18$

7. $4509 \div 74$

8. $3457 \div 32$

9. $6586 \div 42$

10. $17,402 \div 705$

11. $17,425 \div 3427$

12. $284 \div 32$

13. $9243 \div 197$

14. $6789 \div 3075$

15. $17,501 \div 85$

16. $7432 \div 19$

17. $4789 \div 42$

18. $73,318 \div 456$

Answers

1. 71.8

2. 6.93069

3. 13.61111

4. 1.29301

5. 23.98989

6. 40.27777

7. 60.93243

8. 108.03125

9. 156.80952

10. 24.68368

11. 5.08462

12. 88.875

13. 46.91878

14. 2.2078

15. 205.89411

16. 391.15789

17. 114.0238

18. 160.78508

Division with Decimals

Answers

REMEMBER TO SUBTRACT THE NUMBER OF DECIMALS IN DIVISOR FROM NUMBER OF DECIMALS IN DIVIDEND TO ARRIVE AT NUMBER OF DECIMALS IN QUOTIENT

1. $7,451.75 \div 45.32 =$

IN PROBLEM 1, $2 - 2 = 0$, SO ADD FIVE ZEROS TO DIVIDEND TO CARRY TO FIVE DECIMAL PLACES

2. $713.25 \div 4.05 =$

3. $475.21 \div 15 =$

4. $4,731.29 \div 128.95 =$

5. $718.95 \div 403.7 =$

6. $3,407.5 \div 19.5 =$

7. $1.478 \div 2.05 =$

8. $4.75 \div 25 =$

9. $974 \div .155 =$

10. $321 \div 25.75 =$

11. $9084 \div 75 =$

12. $42.15 \div 8.25 =$

1. 164.42519
2. 176.11111
3. 31.68066
4. 36.69088
5. 1.7809
6. 174.74358
7. .72097
8. .19
9. 6283.87096
10. 12.46601
11. 121.12
12. 5.10909

IF THE DIVISOR IS LARGER THAN THE
DIVIDEND, ADD AS MANY ZEROS TO THE
DIVIDEND AS THERE ARE NUMBERS
(WHOLE OR DECIMALS) IN THE DIVISOR

Answers

13. $47 \div 473.56 =$

14. $19 \div 45,962 =$

15. $203 \div 78,930 =$

16. $15 \div 40.55 =$

17. $95 \div 876.5 =$

18. $21 \div 40.25 =$

19. $25 \div 40.557 =$

20. $305 \div 197.55 =$

21. $18 \div 405 =$

22. $197 \div 1,875 =$

23. $15.55 \div 9,542 =$

24. $17 \div 405 =$

25. $35 \div 91 =$

26. $74 \div 90,358 =$

13. .09924
14. .00041
15. .00257
16. .36991
17. .10838
18. .52173
19. .61641
20. 1.54391
21. .04444
22. .10506
23. .00162
24. .04197
25. .38461
26. .00081

DID YOU REMEMBER
TO ADD 7 ZEROS TO
DIVIDEND IN NO. 13?
THIS WAS NECESSARY
TO CARRY QUOTIENT
TO 5 DECIMAL PLACES

PERCENTAGE OF INCREASE OR DECREASE

Percentages have to be carried out only two decimal places, so you will add four zeros to dividend.

<u>Expense Item</u>	<u>Last Year</u>	<u>This Year</u>	<u>Amount of Increase or Decrease</u>	<u>Answers</u>	
				<u>Per-centage + or -</u>	<u>Amount of Increase or Decrease</u>
Oil	\$ 294	\$ 375			\$ + 81 + 27.55%
Gas	402	516			+114 + 28.36%
Rent	2,075	1,600			-475 - 22.89%
Taxes	324	427			+103 + 31.79%
Delivery	198	134			- 64 - 32.32%
Telephone	375	485			+110 + 29.33%
Entertainment	890	1,300			+410 + 46.06%
Postage	374	454			+ 80 + 21.39%
Travel	2,270	3,874			+1,604 + 70.66%
Insurance	975	1,272			+297 + 30.46%
Salaries	15,000	22,000			+7,000 + 46.66%

THE PRIOR OR BASE YEAR IS ALWAYS THE DIVISOR

On the Olivetti Underwood, depress 375.0000 into keyboard and hit the plus bar; depress 294.0000 into the keyboard and hit the minus bar; depress 294 into keyboard and hit divide equal key.

Notice that you get the difference \$ +81 and the percentage of increase 27.55% all in one step. The same thing is true of the Victor except that the master control must be moved to divide position after the subtraction operation is performed. Always subtract the smaller number from the larger number and divide by the prior year.

SALES

<u>Month</u>	<u>Last Year</u>	<u>This Year</u>	<u>Answers</u>			
			<u>Amount of Increase or Decrease</u>	<u>Per-centage + or -</u>	<u>Amount of Increase or Decrease</u>	<u>Per-centage + or -</u>
January	\$10,920	\$13,420	+ 2,500	+ 22.89%		
February	17,420	15,437	- 1,983	- 11.38%		
March	13,277	12,409	- 868	- 6.53%		
April	19,740	16,421	- 3,319	- 16.81%		
May	21,417	22,721	+ 1,304	+ 6.08%		
June	20,318	16,375	- 3,943	- 19.40%		
July	19,111	22,470	+ 3,359	+ 17.57%		
August	18,125	19,217	+ 1,092	+ 6.02%		
September	17,401	20,807	+ 3,406	+ 19.57%		
October	14,407	18,901	+ 4,494	+ 31.19%		
November	19,304	24,321	+ 5,017	+ 25.98%		
December	25,792	33,417	+ 7,625	+ 29.56%		

It would probably be helpful if you took the sample post test on the next several pages. Time yourself. Follow the same directions that you were given in the pretest. If you feel that you have mastered the ten-key automatic calculator, ask me for the post test. If you feel you need more practice, please turn to the supplementary problems and work problems of the type that gave you difficulty on the sample post test. Ask me for the post test when you feel you can meet the objective stated at the beginning of this unit.

SAMPLE POST TEST FOR TEN-KEY CALCULATOR

$$\begin{array}{r} (1) \quad 7.84 \\ \quad 3.241 \\ 53.98 \\ \quad 4.07 \\ \hline \quad 3.531 \end{array}$$

$$\begin{array}{r} (2) \quad .5267 \\ \quad -3.66 \\ 15.988 \\ \quad .525 \\ \hline \quad -13.3 \end{array}$$

$$\begin{array}{r} (3) \quad 4.875 \\ \quad .35 \\ \hline \end{array} \text{ST.}$$

$$\begin{array}{r} (4) \quad 8.755 \\ \quad 18.53 \\ \hline \end{array} \text{T}$$

$$\begin{array}{r} (5) \quad 335.57 \\ \quad -205.98 \\ \hline \end{array}$$

$$\begin{array}{r} (6) \quad 750.73 \\ \quad -891.45 \\ \hline \end{array}$$

$$\begin{array}{r} (7) \quad 2,291.40 \\ \quad -2,145.91 \\ \hline \end{array}$$

$$\begin{array}{r} (8) \quad 3,428.07 \\ \quad -4,276.10 \\ \hline \end{array}$$

$$\begin{array}{r} (9) \quad 545.25 \\ \quad 545.25 \\ \quad 545.25 \\ \quad 30.15 \\ \quad 30.15 \\ \quad 30.15 \\ \hline \end{array}$$

$$\begin{array}{r} (10) \quad 1,330.77 \\ \quad 1,330.77 \\ \quad 1,330.77 \\ \quad 750.30 \\ \quad 750.30 \\ \hline \quad 1,346.67 \end{array}$$

$$(11) \quad 591 \times 94 =$$

$$(12) \quad 55 \times 28 =$$

$$(13) \quad 31 \times 48 =$$

$$(14) \quad 721 \times 59 =$$

$$(15) \quad 55 \times 72 =$$

$$(16) \quad 18.2 \times 3.86 =$$

$$(17) \quad 25 \times 25.2 =$$

$$(18) \quad 2.57 \times 19.33 =$$

$$(19) \quad 3.87 \times 22.3 =$$

$$(20) \quad 19.45 \times 4.3 =$$

$$(21) \quad 30 \times 15 \times 22 \times 12 =$$

$$(22) \quad 122 \times 14 \times 32 =$$

$$(24) \quad 30 \times 24 \times 25 \times 11 =$$

$$(25) \quad 64 \times 54 \times 71 =$$

$$\begin{array}{r} (26) \quad 17 \times 92 \\ \quad 73 \times 54 \\ \quad \underline{57 \times 49} \end{array}$$

$$\begin{array}{r} (27) \quad 7.76 \times 4.9 \\ \quad 89.42 \times .54 \\ \quad \underline{5.3 \times 6.9} \end{array}$$

$$\begin{array}{r} (28) \quad 5.71 \times 8.75 \\ \quad .54 \times 9.7 \\ \quad \underline{9.51 \times 75.2} \end{array}$$

$$(29) \quad 136 \text{ lbs. at } \$1.95 =$$

$$(30) \quad 40 \text{ lbs. at } \$1.95 =$$

$$(31) \quad 61 \text{ lbs. at } \$1.95 =$$

$$(32) \quad 87 \text{ lbs. at } \$1.95 =$$

$$(33) \quad 58 \text{ lbs. at } \$1.95 =$$

$$(34) \quad 201 \text{ doz. at } \$.75 =$$

$$(35) \quad 63 \text{ doz. at } \$.75 =$$

$$(36) \quad 16 \text{ doz. at } \$.75 =$$

$$(37) \quad 433 \text{ doz. at } \$.75 =$$

$$(38) \quad 10 \text{ doz. at } \$.75 =$$

$$(39) \quad 2,512 \div 57 =$$

$$(40) \quad 786 \div 74 =$$

$$(41) \quad 3,689 \div 19 =$$

$$(42) \quad 9,864 \div 158 =$$

$$(43) \quad 11,903 \div 407 =$$

$$(44) \quad 107.542 \div 57 =$$

$$(45) \quad 29.75 \div 2.5 =$$

$$(46) \quad 13.15 \div .55 =$$

$$(47) \quad 55 \div 595.25 =$$

$$(48) \quad 14 \div 30.55 =$$

SALES COMPARISON

<u>Month</u>	<u>Last Year</u>	<u>This Year</u>	<u>Amount of Increase or Decrease</u>	<u>% + or -</u>
January	\$ 13,600	16,575		
February	8,570	12,602		
March	14,547	21,233		
April	14,870	14,900		
May	21,740	19,429		
June	41,230	50,802		
July	16,932	19,905		
August	17,452	15,942		
September	21,704	18,702		
October	31,504	27,408		
November	25,801	30,435		
December	59,719	40,536		

ANSWERS FOR SAMPLE POST TEST FOR TEN-KEY CALCULATOR

(1) 72.662	(27) 122.8808	(38) \$ 7.50
(2) .0797	(28) 770.3525	(39) 44.07017
(3) 5.225 ST	(29) \$ 265.20	(40) 10.62162
(4) 32.51 T	(30) \$ 78.00	(41) 194.15789
(5) 129.59	(31) \$118.95	(42) 62.4307
(6) 140.72 Cr.	(32) \$169.65	(43) 29.2457
(7) 145.49	(33) \$113.10	(44) 1.8867
(8) 848.03 Cr.	(34) \$150.75	(45) 11.9
(9) 1,726.20	(35) \$47.25	(46) 23.90909
(10) 6,839.58	(36) \$12.00	(47) .09239
(11) 55,554	(37) \$324.75	(48) .45826
(12) 1,540		
(13) 1,488	Increase or Decrease	% + or -
(14) 42,539	(49) + \$ 2,975	+ 21.87%
(15) 3,960	(50) + \$ 4,032	+ 47.04%
(16) 70.252	(51) + \$ 6,686	+ 45.96%
(17) 630	(52) + \$ 30	+ .2%
(18) 49.6781	(53) - \$ 2,311	- 10.63%
(19) 86.301	(54) + \$ 9,572	+ 23.21%
(20) 83.635	(55) + \$ 2,973	+ 17.55%
(21) 118,800	(56) - \$ 1,510	- 8.65%
(22) 54,656	(57) - \$ 3,002	- 13.83%
(23) 137,826	(58) - \$ 4,096	- 13%
(24) 198,000	(59) + \$ 4,634	+ 17.96%
(25) 245,376	(60) - \$ 19,183	- 32.12%
(26) 8,299		

ROTARY CALCULATOR

57

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ROTARY CALCULATOR

The rotary calculator is very popular with office workers and professional workers who have complicated problems to solve. The machine will add, subtract, multiply, and divide. It is a very impressive piece of office equipment, and I believe you will enjoy working with it.

The objective is for you to work correctly 32 problems out of 34 in 35 minutes (94% accuracy).

These problems will consist of:

1. Addition, subtraction, multiplication, and division of whole numbers and decimals.
2. Accumulated multiplication.
3. Computation of interest.
4. Computation of percentages of increases and decreases.
5. Computation of net amounts involving chain discounts.
6. Addition of constants.

It has occurred to me that perhaps some of you who have office experience or who are veterans, etc., might already know how to operate a rotary calculator. At this point you should take the pretest on page 63 to see if you need further instruction and practice on the rotary calculator.

PRETEST FOR ROTARY CALCULATOR

Time yourself for 35 minutes. Work quickly. Work each problem one time. If you finish in less than 35 minutes, use the remaining time to check your work.

1. Round cents off to two decimal places.
2. Carry percentages out to two decimal places.
3. Round all products off to five decimal places.
4. Carry all division problems out to five decimal places.
5. Punctuate all answers with commas and decimal points.
6. Indicate special notations in answers; for example, Cr., %.

1.	4.17	2.	1.75	3.	21.50	4.	27.50	5.	10.50
	3.25		1.32		16.95		14.95		14.90
	9.18		4.28		29.30		37.50		.25
	7.21		5.18		54.89		42.90		365.50
	2.35		7.01		22.40		26.42		2,401.16
	9.80		5.31		31.50		51.76		14.90
	4.05		6.95		17.42		19.95		42.50
	4.21		3.75		19.85		42.20		17.99
	1.95		4.50		14.21		17.50		407.50
	<u>2.49</u>		<u>2.98</u>		<u>70.98</u>		<u>25.82</u>		<u>1,200.10</u>

6.	10.50	7.	77.42	8.	275.32	9.	401.50	10.	743.42
	<u>- 4.37</u>		<u>-19.37</u>		<u>-14.50</u>		<u>-719.25</u>		<u>-989.50</u>

11. $1089 + 745 =$

$925 + 745 =$

$819 + 745 =$

12. $145.6 \times 42.99 =$

13. $37.4 \times 15 =$

14. $98.7 \times 48.5 =$

15. $15 \times 177 \times 402 =$

16. $19.4 \times 3.07 \times 15.5 =$

17. $175.45 \div 27.5 =$

18. $746.16 \div 14.01 =$

19. $424.75 \div 49 =$

20. Convert 127 feet to yards

21. Convert 1075 inches to feet

22. Accumulate:

$$\begin{array}{r} 15.95 \times 47.523 \\ 4.01 \times 1.24 \\ 93.4 \times .15 \\ \hline 609.24 \times 3.25 \end{array}$$

Interest on:

23. \$ 950.50 at 4 1/2% =

24. \$2,450.75 at 5 3/4% =

25. \$1,795.00 at 7% =

26. \$2,462.75 at 7 1/4% =

Find the Percentage of Increase or Decrease

	Previous	Current	Percentage + or -
27.	9,500	10,171	
28.	14,970	17,402	
29.	5,492	4,998	
30.	10,764	11,500	
31.	29,456	26,375	

Find the net Amount of the following:

32. \$1,742.25 less 12%, 7%, 5%

33. \$ 895.00 less 20%, 15%, 10%

34. \$ 987.42 less 15%, 10%, 5%

CHECK YOUR ANSWERS ON PAGE 65.

ANSWERS TO PRETEST FOR ROTARY CALCULATOR

- | | | |
|----------------|-----------------------|--------------|
| 1. 48.66 | 13. 561 | 26. 178.55 |
| 2. 43.03 | 14. 4,786.95 | 27. + 7.06% |
| 3. 299.00 | 15. 1,067,310 | 28. +16.24% |
| 4. 306.50 | 16. 923.149 | 29. - 8.99% |
| 5. 4,475.30 | 17. 6 '8 | 30. + 6.83% |
| 6. 6.13 | 18. 5 '1.591 | 31. -10.45% |
| 7. 58.05 | 19. 8.66836 | 32. 1,354.56 |
| 8. 260.82 | 20. 42 yds., 1 ft. | 33. 547.74 |
| 9. 317.75 Cr. | 21. 89 feet, 7 inches | 34. 717.61 |
| 10. 246.08 Cr. | 22. 2,757.00425 | |
| 11. 1,834 | 23. 42.77 | |
| 1,670 | 24. 140.92 | |
| 1,564 | 25. 125.65 | |
| 12. 6,259.344 | | |

If the pretest indicates that the stated objective has been met, ask me for the post test.

If the pretest indicates that further study and practice would be helpful, select one of the five rotary calculators in your classroom and have it in front of you as you view film no. 1 and listen to tape no. 1.

PROBLEMS FOR ROTARY CALCULATOR

Cover the answer column.

After you work each problem, check your answer immediately in the column at the right. If your answer is correct, proceed to the next problem. If your answer is incorrect, work the problem again, or as many times as necessary to arrive at the correct answer.

Since we have four different kinds of rotary calculators in the classroom, different machine adjustments will be required for each machine.

As you know, there is a film and a tape explaining how to perform each operation on each machine; and you have already viewed the film and listened to the tape for the particular machine you are operating. If you are unable to work any problem as you go through this section, you should view the film and listen to the tape again.

Please understand that if you become skilled on one type of rotary calculator, you will have no difficulty switching to another type; but at this initial learning stage, there is enough difference to warrant individual instruction on each machine.

Adding Whole Numbers

Answers

1. 22	2. 55	3. 21	4. 88	5. 97	1. 124
12	43	22	89	46	2. 221
23	44	76	98	75	3. 274
33	45	77	99	54	4. 461
<u>34</u>	<u>34</u>	<u>78</u>	<u>87</u>	<u>57</u>	5. 329
6. 86	7. 19	8. 21			6. 444
25	23	17			7. 227
56	111	71			8. 648
101	46	160			9. 3,180
<u>176</u>	<u>28</u>	<u>379</u>			10. 2,674
					11. 5,241
					12. 5,227
					13. 37,899
					14. 34,555

USING PROPER FINGER TECHNIQUES AS
DEMONSTRATED IN THE FILM WILL SPEED
UP YOUR WORK

9. 47	10. 100	11. 421	12. 934
129	501	401	159
406	28	195	678
709	99	625	125
337	406	579	981
98	890	901	602
344	224	755	227
678	374	432	408
399	14	809	943
<u>33</u>	<u>38</u>	<u>123</u>	<u>170</u>

13. 1,030	14. 1,776
2,141	1,812
5,013	1,939
9,022	1,442
2,157	2,319
4,373	3,731
5,662	7,761
1,970	2,050
2,524	4,051
<u>4,007</u>	<u>7,674</u>

ARE YOU READING THE NUMBERS WITH A
QUICK GLANCE AND AVOIDING THE
TEMPTATION TO TAKE A SECOND LOOK

Adding Numbers with Decimals

Answers

15. 1.71
23.41
8.09
7.42
5.36

16. 24.75
19.24
54.12
10.90
9.98

17. 7.43
4.02
15.45
17.95
32.21

15. 45.99
16. 118.99
17. 77.06
18. 400.6259
19. 532.5283
20. 41.0777
21. 467.913
22. 305.112
23. 786.912

18. 376.401
.1052
3.0257
3.174
17.92

19. 401.257
40.12
7.4013
15.95
67.80

20. .9820
7.943
6.021
9.3
16.8317

DID YOU REMEMBER TO ALIGN YOUR DECIMAL
POINTS AND TO MARK THEM ON YOUR MACHINE
BY USING DECIMAL MARKERS IN REGISTER
DIAL AND KEYBOARD?

21. 1.743
9.01
16.23
39.407
401.523

22. 19.27
10.277
3.4
265.43
6.735

23. 7.401
97.433
2.778
3.89
675.41

Subtraction

Answers

- | | | | | |
|------------|------------|-------------|-------------|--------------|
| 1. 64 | 2. 75 | 3. 799 | 4. 401 | 5. 3,907 |
| <u>-32</u> | <u>-24</u> | <u>-326</u> | <u>-299</u> | <u>- 322</u> |

1. 32
2. 51
3. 473
4. 102
5. 3,585
6. 6,182
7. 2,445
8. 2,335
9. 349,029
10. 1,700,062
11. 32,021
12. 16,977
13. 98 Cr.
14. 377 Cr.
15. 814 Cr.
16. 1,793 Cr.
17. 754 Cr.
18. 4,059 Cr.
19. 557 Cr.
20. 1.29 Cr.
21. 3.55 Cr.
22. 305.39 Cr.
23. 358.77 Cr.
24. 77.95 Cr.

DEPRESSION OF WRONG KEY ON KEYBOARD CAN BE CORRECTED BY SIMPLY DEPRESSING CORRECT KEY.

- | | | | |
|--------------|---------------|---------------|----------------|
| 6. 6,701 | 7. 3,478 | 8. 4,711 | 9. 374,029 |
| <u>- 519</u> | <u>-1,033</u> | <u>-2,376</u> | <u>-25,000</u> |

- | | | |
|-------------------|----------------|--------------|
| 10. 4,100,462 | 11. 51,763 | 12. 17,299 |
| <u>-2,400,400</u> | <u>-19,742</u> | <u>- 322</u> |

AN ERROR DEPRESSED IN THE KEYBOARD CAN BE CORRECTED BY DEPRESSING THE KEYBOARD CLEAR KEY.

Credit Balances

- | | | | |
|-------------|---------------|---------------|----------------|
| 13. 701 | 14. 4,623 | 15. 5,921 | 16. 8,932 |
| <u>-799</u> | <u>-5,000</u> | <u>-6,735</u> | <u>-10,725</u> |

17. 7,466
-8,220

DO YOU REMEMBER HOW TO CONVERT A COMPLEMENT TO A CREDIT BALANCE

- | | | | |
|----------------|----------------|---------------|---------------|
| 18. 21,325 | 19. 44,648 | 20. 17.21 | 21. 29.45 |
| <u>-25,384</u> | <u>-45,205</u> | <u>-18.50</u> | <u>-33.00</u> |

- | | | |
|----------------|----------------|------------------|
| 22. 429.50 | 23. 275.50 | 24. 1,201.50 |
| <u>-734.89</u> | <u>-634.27</u> | <u>-1,279.45</u> |

ARE YOU WRITING COMMAS, DECIMAL POINTS, CREDIT OR OTHER NECESSARY EXPLANATIONS IN YOUR ANSWERS?

Addition and Subtraction

Answers

25. 17.95
23.04
-17.80
21.25
5.99
8.75
- 2.01
6.22
4.19
-20.70

26. 21.75
49.21
16.19
204.27
- 33.44
17.30
- 17.30
78.94
17.95
2.01

27. 40.50
19.29
-57.22
1.55
- 1.25
74.99
21.67
4.21
1.95
13.72

25. 46.88
26. 356.88
27. 119.41

IF AN INCORRECT FIGURE HAS BEEN REGISTERED INTO THE DIAL, THE ERROR CAN BE CORRECTED BY SUBTRACTING THE SAME AMOUNT.

Constants in Addition

Answers

1. 450 + 395 =
925 + 395 =
475 + 395 =
2. 1,714 + 165 =
1,402 + 165 =
1,524 + 165 =
3. 14.65 + 7.64 =
29.95 + 7.64 =
17.82 + 7.64 =

1. 845
1,320
870
2. 1,879
1,567
1,689
3. 22.29
37.59
25.46
4. 34.5244
27.6562
17.4851
5. 12.00
10.54
11.06

DID YOU SET DECIMAL MARKERS?

4. 21.7694 + 12.755 =
14.9012 + 12.755 =
4.7301 + 12.755 =
5. 4.21 + 7.79 =
2.75 + 7.79 =
3.27 + 7.79 =

Constants in Subtraction

	Variable		Constant	Difference		Answers
6.	7,947	-	3,500	=	6.	4,447
	6,491	-	3,500	=		2,991
	5,275	-	3,500	=		1,775
7.	2,535	-	725	=	7.	1,810
	3,127	-	725	=		2,402
	2,708	-	725	=		1,983
8.	795	-	215	=	8.	580
	314	-	215	=		99
	229	-	215	=		14
9.	74.95	-	14.95	=	9.	60.00
	60.00	-	14.95	=		45.05
	99.75	-	14.95	=		84.80

DID YOU SET DECIMAL MARKERS?

10.	13.4789	-	1.495	=	10.	11.9839
	12.3602	-	1.495	=		10.8652
	12.7891	-	1.495	=		11.2941

Multiplication

Whole Numbers

Answers

1. $45 \times 6 =$	1. 270
2. $21 \times 75 =$	2. 1,575
3. $22 \times 49 =$	3. 1,078
4. $24 \times 17 =$	4. 408
5. $42 \times 5 =$	5. 210
6. $21 \times 98 =$	6. 2,058
7. $87 \times 94 =$	7. 8,178
8. $804 \times 634 =$	8. 509,736
9. $209 \times 29 =$	9. 6,061
10. $1,724 \times 1,234 =$	10. 2,127,416
11. $4,309 \times 24 =$	11. 103,416
12. $845 \times 99 =$	12. 83,655
13. $7,432 \times 2,647 =$	13. 19,672,504
14. $4,789 \times 87 =$	14. 416,643
15. $137 \times 22 =$	15. 3,014

DID YOU WRITE A COMMA IN
YOUR ANSWER TO SEPARATE
THOUSANDS?

Multiplying Decimals

In these next ten problems, place the decimal in product manually;
that is, without working around fixed decimals.

	Answers
16. $7.4 \times 5.4 =$	16. 39.96
17. $3.5 \times 4.7 =$	17. 16.45
18. $1.9 \times 4.5 =$	18. 8.55

DID YOU ADD THE NUMBER OF DECIMAL PLACES IN MULTIPLIER TO NUMBER OF DECIMAL PLACES IN MULTIPLICAND TO FIND OUT HOW MANY PLACES TO MARK OFF IN PRODUCT?

19. $19.45 \times 4.2 =$	19. 81.690
20. $.37 \times 4.007 =$	20. 1.48259
21. $4.1732 \times 68.9 =$	21. 287.53348
22. $89.42 \times 77.15 =$	22. 6,898.7530
23. $.0042 \times 6.6 =$	23. .02772
24. $7.89 \times 2.2 =$	24. 17.358
25. $12.75 \times 15.25 =$	25. 194.4375

Multiplying Around Fixed Decimals

Preset your decimal places to accommodate the largest number of decimal places in the multiplicand and the multiplier.

	Answers
1. $15.45 \times 17.15 =$	1. 264.9675
2. $125.4 \times .132 =$	2. 16.5528
3. $7.89 \times 4.5 =$	3. 35.505
4. $4.66 \times 2.6975 =$	4. 12.57035
5. $.375 \times 4.7515 =$	5. 1.78181
6. $3.25 \times .4576 =$	6. 1.4872
7. $12.5 \times 5.684 =$	7. 71.05
8. $10.4428 \times 75.675 =$	8. 790.25889
9. $75.5 \times 12.5832 =$	9. 950.0316
10. $.775 \times .7125 =$	10. .55218
11. $95.6075 \times 13.7 =$	11. 1,309.82275
12. $15.807 \times 22.774 =$	12. 359.98861
13. $12.75 \times 2.4304 =$	13. 30.9876
14. $179.455 \times .225 =$	14. 40.37738
15. $14.95 \times 75.25 =$	15. 1,124.9875
16. $95.432 \times 15.6 =$	16. 1,488.7392

ARE YOU DEPRESSING MULTIPLICAND
INTO KEYBOARD AROUND PRESET
DECIMALS?

Multiplying Three Factors

	Answers
1. $7 \times 8 \times 9 =$	1. 504
2. $13 \times 17 \times 21 =$	2. 4,641
3. $45 \times 205 \times 21 =$	3. 193,725
4. $15 \times 17 \times 19 =$	4. 4,845
5. $25 \times 11 \times 26 =$	5. 7,150
6. $13 \times 14 \times 245 =$	6. 44,590

IN ALL THE FOLLOWING PROBLEMS, YOU MAY PLACE THE DECIMAL POINT MANUALLY, BUT IT WILL BE MUCH FASTER IF YOU DECIDE ON AN APPROPRIATE DECIMAL PROGRAM AND WORK AROUND FIXED DECIMALS.

7. $4.5 \times 2.5 \times 799 =$	7. 8,988.75
8. $2.4 \times 5.5 \times 3.2 =$	8. 42.24
9. $3.5 \times .435 \times 10.99 =$	9. 16.73227

IF KEYBOARD WILL NOT ACCOMMODATE THE WHOLE NUMBERS IN THE PRODUCT OF THE FIRST OPERATION, RESET DECIMALS OR POINT OFF DECIMALS MANUALLY. SOMETIMES IT MAY BE NECESSARY TO DROP DECIMALS FOR WHICH NO ROOM EXISTS ON KEYBOARD.

10. $1.74 \times 4.5 \times 2.07 =$	10. 16.2081
11. $3.34 \times 4.21 \times 1.95 =$	11. 27.41973
12. $4.9 \times .065 \times 5.66 =$	12. 1.80271

Accumulated Multiplication

Answers

$$\begin{array}{r}
 1. \quad 15.1 \quad \times \quad 14.7 \\
 \quad \quad 3.2 \quad \times \quad 1.25 \\
 \quad \quad 14.78 \quad \times \quad 3.042 \\
 \hline
 195.75 \quad \times \quad 24.78
 \end{array}$$

$$\begin{array}{r}
 7. \quad 124.2 \quad \times \quad .76 \\
 \quad \quad 4.97 \quad \times \quad .332 \\
 \quad \quad 21.35 \quad \times \quad 1.442 \\
 \hline
 125.3 \quad \times \quad .75
 \end{array}$$

1. 5,121.61576
2. 3,505.78765
3. 95.1776

DO YOU REMEMBER FROM THE FILM THE MACHINE ADJUSTMENTS FOR ACCUMULATED MULTIPLICATION? IF NOT, VIEW THE FILM AND LISTEN TO THE TAPE AGAIN.

$$\begin{array}{r}
 2. \quad 75.9 \quad \times \quad 40.23 \\
 \quad \quad 1.486 \quad \times \quad 74.693 \\
 132.74 \quad \times \quad 2.431 \\
 \hline
 4.31 \quad \times \quad 4.3262
 \end{array}$$

$$\begin{array}{r}
 8. \quad .2 \quad \times \quad .75 \\
 \quad \quad 4.9 \quad \times \quad 2.55 \\
 30.7 \quad \times \quad .42 \\
 \hline
 4.095 \quad \times \quad .4552
 \end{array}$$

4. 3,983.63999
5. 1,398.32072
6. 5,485.42825
7. 220.80374
8. 27.40304
9. 1,078.656

$$\begin{array}{r}
 3. \quad .9 \quad \times \quad .74 \\
 \quad \quad 3.3 \quad \times \quad 4.98 \\
 10.21 \quad \times \quad 7.31 \\
 \hline
 7.65 \quad \times \quad .45
 \end{array}$$

$$\begin{array}{r}
 9. \quad 12.74 \quad \times \quad 1.9 \\
 \quad \quad .34 \quad \times \quad .25 \\
 37.5 \quad \times \quad 2.5 \\
 \hline
 1067.35 \quad \times \quad .9
 \end{array}$$

10. 433.5976
11. 39,819.3195

$$\begin{array}{r}
 4. \quad 4.21 \quad \times \quad 19.5 \\
 17.95 \quad \times \quad 215.63 \\
 4.755 \quad \times \quad 6.5 \\
 \hline
 .4224 \quad \times \quad .187
 \end{array}$$

$$\begin{array}{r}
 10. \quad 1.5 \quad \times \quad 3.45 \\
 \quad \quad .98 \quad \times \quad .995 \\
 75.15 \quad \times \quad 2.15 \\
 \hline
 1063.5 \quad \times \quad .25
 \end{array}$$

$$\begin{array}{r}
 5. \quad 33.1 \quad \times \quad 32.125 \\
 \quad \quad 5 \quad \times \quad 6.476 \\
 341.5 \quad \times \quad .75 \\
 \hline
 2.34 \quad \times \quad 7.008
 \end{array}$$

$$\begin{array}{r}
 11. \quad 79.5 \quad \times \quad 500.15 \\
 74.21 \quad \times \quad .75 \\
 .45 \quad \times \quad 1.25 \\
 \hline
 2.61 \quad \times \quad .45
 \end{array}$$

$$\begin{array}{r}
 6. \quad 15.9 \quad \times \quad 4.73 \\
 501.25 \quad \times \quad 10.765 \\
 14.76 \quad \times \quad .8 \\
 \hline
 4.095 \quad \times \quad .6
 \end{array}$$

Multiplying Fractions

Multiplying fractions is the same as multiplying any number containing a decimal once you have converted the fraction to a decimal equivalent.

Some of the more common decimal equivalents you probably know are:

$$1/4 = .25$$

$$3/4 = .75$$

$$1/2 = .50$$

A decimal equivalent can be computed by simply dividing the numerator of the fraction by the denominator. For example:

$$\begin{array}{r} 1/8 = 8 \overline{) 1.000} \\ \underline{8} \\ 20 \\ \underline{16} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

For your convenience, a table of decimal equivalents is provided in the appendix.

Round decimal equivalents off to five places.

Multiplying Fractions

Answers

- | | |
|---------------------------|-------------|
| 1. $1/2 \times 1\ 5/8 =$ | 1. .8125 |
| 2. $5/6 \times 45\ 1/2 =$ | 2. 37.91652 |

If the capacity of your machine is not enough to take care of decimal places using fixed decimals, you may disregard decimal markers and place decimals manually.

- | | |
|--------------------------------|---------------|
| 3. $4\ 1/3 \times 7\ 2/3 =$ | 3. 33.22221 |
| 4. $10\ 1/2 \times 4\ 3/4 =$ | 4. 49.875 |
| 5. $25\ 7/8 \times 15\ 1/8 =$ | 5. 391.35938 |
| 6. $4\ 3/8 \times 19\ 1/2 =$ | 6. 85.3125 |
| 7. $12\ 2/3 \times 204\ 1/2 =$ | 7. 2,590.3334 |
| 8. $32\ 1/3 \times 10\ 7/8 =$ | 8. 351.625 |
| 9. $99 \times 1/3 =$ | 9. 32.99997 |
| 10. $14\ 1/4 \times 5/6 =$ | 10. 11.875 |

ARE YOU ROUNDING OFF THE DECIMAL
EQUIVALENTS TO FIVE DECIMAL
PLACES AND ROUNDING OFF THE PRO-
DUCT TO FIVE DECIMAL PLACES?

Computing Percentages

In business, the computation of percentages is a very basic operation. It is essential in figuring interest and discounts.

Numerical relationships may be expressed in fractions, decimals, or percentages.

For example: $3/4 = .75$ and $.75 = 75\%$

We know that to convert $3/4$ to $.75$, the denominator is divided into the numerator.

Now, to convert $.75$ to a percentage, simply move the decimal point two places to the right and add a percent sign (%) 75% .

Conversely, to convert a percentage to a decimal, move the decimal point two places to the left. $75\% = .75$. Percent means hundredths. 75% means seventy-five hundredths or $75/100$; 5% means five hundredths or $5/100$.

You can see that if you divide 100 into 75 and 100 into 5, you get the decimal equivalent--the same as you get the decimal equivalent of any fraction.

$$\begin{array}{r} .75 \\ 100 \overline{) 75.00} \\ \underline{70 \ 00} \\ 5 \ 00 \\ \underline{5 \ 00} \\ 0 \end{array}$$

$$\begin{array}{r} .05 \\ 100 \overline{) 5.00} \\ \underline{5 \ 00} \\ 0 \end{array}$$

Find the percentages of the following problems by multiplying the number by the rate percent and marking off the proper number of decimal points.

Answers

1. 25% of \$100 =

1. \$ 25.00

Multiply 100 by the decimal equivalent of
 $25\% \left(\frac{25}{100} = .25 \right)$

2. 30% of \$595 =

2. 178.50

3. 15% of \$400 =

3. 60.00

Note: It is always easier to work around fixed decimals if the capacity of the machine is adequate.

4. .5% of \$100 =

4. .50

Notice that .5% is five-tenths or $\frac{1}{2}$ of 1%, and the decimal equivalent will be .005 (not .05), because you must move the decimal point two places to the left to convert percent to decimal equivalent.

Answers .

- | | |
|-------------------------------------|--------------|
| 5. $6 \frac{7}{8}\%$ of \$795.35 = | 5. \$ 54.68 |
| 6. 9% of \$85 = | 6. \$ 7.65 |
| 7. 103% of \$555 = | 7. \$571.65 |
| 8. 24% of \$19.95 = | 8. \$ 4.79 |
| 9. 4.5% of \$750 = | 9. \$ 33.75 |
| 10. $2 \frac{1}{2}\%$ of \$432 = | 10. \$ 10.80 |
| 11. $10 \frac{3}{4}\%$ of \$45.50 = | 11. \$ 4.89 |
| 12. 125% of \$150 = | 12. \$187.50 |
| 13. 8% of \$35 = | 13. \$ 2.80 |
| 14. $5 \frac{1}{2}\%$ of \$150 = | 14. \$ 8.25 |
| 15. 22% of \$1500 = | 15. \$330.00 |
| 16. $7 \frac{1}{8}\%$ of \$450 = | 16. \$ 32.06 |
| 17. 33% of \$250 = | 17. \$ 82.50 |
| 18. .8% of \$35 = | 18. \$.28 |
| 19. $33 \frac{1}{3}\%$ of \$250 = | 19. \$ 83.33 |
| 20. 27% of \$900 = | 20. \$243.00 |

Computing Net Amounts

NOTE: IF YOU ARE GOING TO DEDUCT ONE PERCENTAGE,
IT ISN'T NECESSARY TO LOCK REGISTER DIAL. SIMPLY
CLEAR COUNTER DIAL AND CONTINUE WITH PROBLEM.

	Answers
1. \$750.00 less 10% =	1. \$ 675.00
2. \$525.50 less 25% =	2. \$ 394.13
3. \$160.00 less 2 1/2% =	3. \$ 156.00
4. \$2,500.00 less 12 1/2% =	4. \$2,187.50
5. \$17.00 less 5 5/8% =	5. \$ 16.04
6. \$97.50 less 4 1/4% =	6. \$ 93.36
7. \$335.00 less 15% =	7. \$ 284.75
8. \$270.00 less 33% =	8. \$ 180.90
9. \$148.50 less 4% =	9. \$ 142.56
10. \$370.00 less 15% =	10. \$ 314.50

Remember, if the capacity of machine is inadequate, disregard decimal markers and mark off decimals manually.

Negative Multiplication

In the previous twenty problems, you figured the percentages. In problem No. 1, you found that 25% of \$100 was \$25. If you were computing interest at the rate of 25%, you have your answer; but suppose you were computing a discount. In that case you would have half of your answer-- the discount would be \$25. But what would the net amount be? You would have to subtract \$25 from \$100 to get the net amount.

If you are interested in getting the net amount and not the percentage, you should use negative multiplication. You will recall that negative multiplication was explained in the film and tape.

Please look at the film and listen to the tape again if necessary. Then use negative multiplication to find the net amounts in the next ten problems.

Chain Discounts

Because of the fluctuation in costs, vendors frequently quote a list price for items in their catalogs and adjust their prices by adjusting the discount to reflect the changes in prices brought about by the changes in costs. New discount sheets can be distributed without reprinting the entire catalog.

In the previous problems, you figured net amounts; that is, the amount left after deducting a specified discount.

Now, we are going to deduct chain discounts, which are a series of discounts. For example, \$150 less 25%, 10%, and 5%. The first discount of 25% would be deducted from \$150. The second discount of 10% would be deducted from the balance of \$150 less 25%, and the third discount of 5% would be deducted from the balance of \$150 less 25%, less 10%.

Please compute the net amounts in the next ten problems by using either the negative or the positive multiplication method.

Let's take the problem in the example:

$$\$150 \text{ less } 25\%, \text{ less } 10\%, \text{ less } 5\% = \$96.19$$

Negative Method - (Use a decimal program of 4-4-8.)

1. Multiply by 1; do not clear register dial.
2. Depress 150 on keyboard and multiply negatively by .25.
3. Depress the product of this multiplication, 112.50, on the keyboard and multiply negatively by .10.
4. Depress the product of the second multiplication, 101.25, on the keyboard and multiply negatively by .05.

REMEMBER, DO NOT ROUND OFF UNTIL FINAL OPERATION.

Positive Method - (Use a decimal program of 4-4-8.)

1. Multiply \$150 by .75 (the decimal equivalent of the net percent after .25 has been deducted).
2. Depress the product of 112.50 on the keyboard, clear register and counter dials (not necessary on machines with "clear multiplier" feature) and multiply by .90 (the decimal equivalent of the net percent after .10 has been deducted).
3. Depress the product, 101.25 on the keyboard, clear register and counter dials (not necessary on machine with "clear multiplier" feature) and multiply by .95 (the decimal equivalent of the net percent after the .05 has been deducted).
4. Final product is 96.1875, rounded off to \$96.19.

Answers

- | | |
|-----------------------------------|---------------|
| 1. \$450 less 15%, 10%, 5% = | 1. \$ 327.04 |
| 2. \$67.50 less 12%, 7%, 3% = | 2. \$ 53.58 |
| 3. \$149.50 less 10%, 8%, 4% = | 3. \$ 118.83 |
| 4. \$490.55 less 20%, 15%, 10% = | 4. \$ 300.22 |
| 5. \$900 less 30%, 25%, 20% = | 5. \$ 378.00 |
| 6. \$795 less 5%, 5%, 5% = | 6. \$ 631.61 |
| 7. \$2,500 less 15%, 8 1/2%, 4% = | 7. \$1,866.60 |
| 8. \$3,750 less 15%, 10%, 5% = | 8. \$2,725.31 |
| 9. \$105 less 7 1/2%, 5%, 5% = | 9. \$ 87.66 |
| 10. \$99.55 less 10%, 10%, 10% = | 10. \$ 72.57 |

Division

Carry to five decimal places even if you have to place decimals manually.

	Answers
1. $150 \div 3 =$	1. 50
2. $225 \div 5 =$	2. 45
3. $175 \div 10 =$	3. 17.5

IF YOU ARE NOT WORKING AROUND FIXED
DECIMALS, DID YOU REMEMBER TO ALIGN
DIVIDEND WITH DIVISOR?

4. $145.10 \div 17 =$	4. 8.53529
5. $14.75 \div .25 =$	5. .59
6. $17.50 \div 2.5 =$	6. 7

DID YOU CARRY THE ANSWER OUT TO FIVE PLACES?

7. $2.744 \div .75 =$	7. 3.65866
8. $104 \div 1.075 =$	8. 96.74418
9. $149 \div 75 =$	9. 1.98666
10. $.129 \div .26 =$	10. .49615
11. $1325 \div 14 =$	11. 94.64285
12. $422 \div .62 =$	12. 680.64516
13. $2,753 \div 2.75^* =$	13. 1001.0909
14. $297.3021 \div 2.33 =$	14. 127.59746
15. $3.022 \div .5 =$	15. 6.044
16. $6.041 \div 7 =$	16. .863

*Beyond capacity of Monroe Semi-Automatic to carry more than 4 decimal places even when placing decimals manually.

17. $1,475 \div 45 =$

18. $666 \div 107 =$

19. $204.96 \div 42 =$

20. $1,076 \div 14 =$

17. 32.77777

18. 6.22429

19. 4.88

20. 76.85714

Expressing quotient as a whole number and a remainder.

Answers

1. $14 \div 4 =$

1. 3 R2

2. $275 \div 9 =$

2. 30 R5

3. $1740 \div 17 =$

3. 102 R6

DID YOU MOVE CARRIAGE TO EXTREME LEFT?

4. $1,475 \div 66 =$

4. 22 R23

5. $795 \div 45 =$

5. 17 R30

6. $1,375 \div 23 =$

6. 59 R18

Convert to Yards

7. 17 ft. =

7. 5 yds. 2 ft.

8. 95 ft. =

8. 31 yds. 2 ft.

9. 127 ft. =

9. 42 yds. 1 ft.

Convert to Feet

10. 45 in. =

10. 3 ft. 9 in.

11. 160 in. =

11. 13 ft. 4 in.

12. 1075 in. =

12. 89 ft. 7 in.

Convert to Pounds

13. 77 oz. =

13. 4 lbs. 13 oz.

14. 10795 oz. =

14. 674 lbs. 11 oz.

15. 375 oz. =

15. 23 lbs. 7 oz.

TYPICAL BUSINESS PROBLEMS

In order to make decisions, businessmen need to compare changes in sales, expenses, etc. They want to know not only the amount of change but the percentage of change.

For example, if sales have increased by \$2,000, an increase of 10%, a businessman would be interested in knowing also how much costs or expenses have increased, and the information would be more meaningful if expressed in percentages.

To find a percentage of increase, subtract the smaller amount from the larger amount, and divide difference by previous amount.

Example:

<u>Previous</u>	<u>Current</u>	<u>Increase or Decrease</u>	<u>Percentage + or -</u>
\$11,000	\$15,000	\$4,000	36.36% $4,000 \div 11,000$

Set the decimal on the keyboard to accommodate the whole numbers; that is \$15,000 and \$11,000. Plus \$15,000 into the machine with the add bar and subtract \$11,000 with the subtract bar, leaving the difference of \$4,000 in the register dial. Depress \$11,000 into the keyboard and hit divide key. Decimals in the register dials will be marked off according to the individual machine as demonstrated in the instructional film.

Amount and Percent of Increase or Decrease

Sales		Answers	
<u>Previous</u>	<u>Current</u>	<u>Increase or Decrease</u>	<u>Percentage + or -</u>
1. \$ 14,500	\$17,425		2,925+ 20.17%+
2. 23,475	29,402		5,927+ 25.24%+
3. 17,496	31,725		14,229+ 81.32%+
4. 21,798	24,302		2,504+ 11.48%+
5. 1,470,420	977,475		492,945- 33.52%
6. 597,432	600,000		2,568+ .42%+
7. 12,419	7,422		4,997- 40.23%-
8. 33,218	30,000		3,218- 9.68%-
9. 27,495	28,722		1,227+ 4.46%+
10. 19,416	21,000		1,584+ 8.15%+

Comparison of Overhead

	<u>Previous</u>	<u>Current</u>	<u>Percentage of Increase or Decrease</u>	<u>Percentage of Increase or Decrease</u>
Insurance	\$ 700	900		+ 28.57%
Utilities	197	200		+ 1.52%
Taxes	4,719	5,028		+ 6.54%
Salaries	25,718	\$ 3,603		+ 18.99%
Rent	1,700	1,500		- 11.76%

You have had an opportunity to work problems of each kind of the pretest. I suggest that you take the following sample post test to determine whether or not you need additional practice before taking the post test.

Please follow the same directions given for the pretest.

If you feel you have mastered the rotary calculator, ask me for the post test. If you feel that additional practice would be helpful, please turn to the supplementary problems and work problems of the type that gave you difficulty on the sample post test. Ask me for the post test when you feel you can meet the objective stated at the beginning of the unit.

SAMPLE POST TEST FOR ROTARY CALCULATOR

(1) 4.27
 3.15
 9.81
 2.71
 5.23
 8.09
 5.04
 2.41
 9.15
4.29

(2) 1.73
 2.13
 8.42
 5.16
 1.07
 5.41
 6.05
 7.35
 4.60
2.89

(3) 21.90
 16.75
 29.43
 54.98
 22.04
 13.05
 71.24
 91.58
 41.12
79.08

(4) 27.05
 41.59
 73.05
 24.09
 62.24
 15.67
 91.59
 24.02
 71.05
52.28

(5) 10.52
 41.09
 .32
 365.55
 2,104.61
 14.98
 52.60
 27.17
 407.90
1,230.17

(6) 15.95
-3.47

(7) 67.24
-20.91

(8) 275.39
-17.05

(9) 401.28
-720.52

(10) 734.24
-899.05

(11) 1198 + 547 =
 592 + 547 =
 981 + 547 =

(12) 541.5 x 24.09 =

(13) 47.3 x 18 =

(14) 89.3 x 32.2 =

(15) 19 x 133 x 506 =

(16) 18.2 x 1.05 x 17.5 =

(17) $185.54 \div 72.5 =$

(18) $467.61 \div 11.04 =$

(19) $422.57 \div 94 =$

(20) Convert 271 feet to yards =

(21) Convert 5,071 inches to feet =

(22) Accumulate:

$$\begin{array}{r}
 14.15 \times 74.253 \\
 3.02 \times 4.21 \\
 85.2 \times .13 \\
 \hline
 506.02 \times 2.53
 \end{array}$$

Interest on:

Answer

(23) \$ 590.25 at 2 1/2% =

(24) 3,540.50 at 1 3/4% =

(25) 1,975.00 at 8% =

(26) 2,624.75 at 8 1/4% =

Find the percentage of increase or decrease:

	Previous	Current	Percentage + or -
(27)	50,190	10,711	
(28)	13,790	15,204	
(29)	4,924	3,778	
(30)	9,653	8,500	
(31)	30,546	29,753	

Find the net amount of the following:

(32) \$1,926.75 less 5%, 20%, 13% =

(33) \$ 752.00 less 25%, 15%, 20% =

(34) \$1,050.75 less 5%, 15%, 10% =

Check your answers on the following page.

ANSWERS TO SAMPLE POST TEST FOR ROTARY CALCULATOR

(1) 54.15	(12) 13,044.735	(24) 61.96
(2) 44.81	(13) 851.4	(25) 158.00
(3) 441.17	(14) 2,875.46	(26) 216.54
(4) 482.63	(15) 1,278.662	(27) 78.65% -
(5) 4,254.91	(16) 334.425	(28) 10.25% +
(6) 12.48	(17) 2.55917	(29) 23.27% -
(7) 46.33	(18) 42.35597	(30) 11.94% -
(8) 258.34	(19) 4.49542	(31) 2.59% -
(9) 319.24 Cr.	(20) 90 yds. 1 ft.	(32) \$1,273.97
(10) 164.81 Cr.	(21) 422 ft. 7 in.	(33) \$383.52
(11) 1,745	(22) 2,354.70075	(34) \$763.63
1,139	(23) 14.76	
1,528		

If the sample post test indicates that you are ready for the post test, please ask me for it. If you feel you need further practice, please work additional problems of the type which gave you difficulty. Supplementary problems can be found in the back of the workbook.

TEN-KEY ADDING-LISTING MACHINE

101

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TEN-KEY ADDING-LISTING MACHINE

The ten-key adding-listing machine is one of the most popular and widely used business machines. It is easy to operate and provides a printed record of the computations, thus the term listing machine. It is called a ten-key because it has ten keys.

Addition is the major operation performed on this machine; however, subtraction, multiplication, and division are also possible.

There are several different makes and models of the ten-key adding-listing machine on the market, and they are all operated almost the same way. In this class, we will use the Victor and the Burroughs.

A touch system similar to the touch system used by typists is used on the ten-key adding-listing machine. The middle row of keys--the 4, 5, and 6--is the home row.

Objective: Learner must work correctly 23 problems out of 25 within 15 minutes.

Some of you may have attained a high degree of skill on the ten-key adding-listing machine from previous training and experience, so at this point, you should take the pretest on the following pages to see if you need further instruction and practice on the ten-key adding-listing machine.

PRETEST FOR TEN-KEY ADDING-LISTING MACHINE

Time yourself for 15 minutes. Work quickly. Work each problem one time. If you finish in less than 15 minutes, use the remaining time to check your answers.

1. Round all reciprocals off to five decimal places.
2. Round all decimal equivalents off to five decimal places.
3. Round all products off to five decimal places.
4. Punctuate all answers with commas and decimal points.
5. Indicate special notations in answers, such as Cr., %, etc.
6. Number all the problems with the non-add key.

(1) 7.42
5.98
4.09
7.38
4.02
6.15
9.37
5.24

(2) 14.98
47.21
62.43
89.61
27.42
43.22
27.61
42.23

(3) 174.25
17.92
386.40
100.07
201.19
42.75
795.80
205.08

(4) 1,792.50
3,204.25
4,691.22
2,075.95
721.80
205.20
6,234.16
9,321.55

(5) 1,742.19
22,906.20
4,201.50
21.15
4,101.25
6,219.86
307.05
2,591.23

(6) 2,077.22
15.95
44.11
5,421.20
65.63
58.59
38.14
2,134.25

(7) $145 \times 29 =$

(8) $224 \times 97 =$

(9) $2,487 \times 118 =$

(10) $7,182 \times 65 =$

(11) $1,901 \times 742 =$

(12) $4.29 \times 3.7 =$

(13) $17.25 \times 421 =$

(14) $21.5 \div 40 =$
(reciprocal of 40 is .025)

(15) $317 \div 33 =$
(reciprocal of 33 is .0303)

(16) $19.27 \div 6 =$
(reciprocal of 6 is .16667)

(17) $2439 \div 6 \frac{1}{2} =$
(reciprocal of 65 is .01539)

(18) $29,784 \div 999 =$
(reciprocal of 999 is .001)

(19) $951 \div \frac{1}{5} =$
(reciprocal of 20 is .05)

$$(20) \begin{array}{r} 121.70 \\ -18.95 \\ \hline \end{array}$$

$$(21) \begin{array}{r} 98.75 \\ -47.08 \\ \hline \end{array}$$

$$(22) \begin{array}{r} 12,984.20 \\ -14,609.80 \\ \hline \end{array}$$

$$(23) \begin{array}{r} 45 \times 17 \\ 34 \times 375 \\ 8 \times 95 \\ \hline 421 \times 18 \end{array}$$

$$(24) (76 \times 324) - (44 \times 85) =$$

$$(25) 175 \times 46 \times 32 =$$

ANSWERS TO PRETEST - TEN-KEY ADDING-LISTING MACHINE

- | | | |
|---------------|----------------|-------------------|
| (1) 49.65 | (10) 466.830 | (19) 4,755 |
| (2) 354.71 | (11) 1,410,542 | (20) 102.75 |
| (3) 1,923.46 | (12) 15.873 | (21) 51.67 |
| (4) 28,246.63 | (13) 7,262.25 | (22) 1,625.60 Cr. |
| (5) 42,090.43 | (14) 5.375 | (23) 21,853 |
| (6) 9,855.09 | (15) 9.6051 | (24) 20,884 |
| (7) 4,205 | (16) 3.21173 | (25) 257,600 |
| (8) 21,728 | (17) 375.3621 | |
| (9) 293,466 | (18) 29.784 | |

If the pretest indicates that the stated objective has been met, ask me for the post test.

If the pretest indicates that further study and practice would be helpful, select one of the ten-key adding machines in your classroom, and have it in front of you as you view film No. 9 and listen to tape No. 9 if the machine you select is a Victor or film No. 10 and tape No. 10 if the machine you select is a Burroughs.

PROBLEMS FOR TEN-KEY ADDING-LISTING

Addition

(1) 11
 22
 33
 12
 13
 32
 31
21

(2) 44
 55
 66
 45
 46
 54
 56
65

(3) 55
 66
 44
 46
 64
 56
 65
46

(4) 23
 32
 33
 22
 31
 13
 12
21

(5) 77
 88
 99
 78
 87
 79
 97
89

(6) 88
 55
 33
 44
 66
 99
 77
22

(7) 89
 78
 67
 56
 45
 34
 23
12

(8) 21
 32
 43
 54
 65
 76
 87
98

Answers

(1) 175
 (4) 187
 (7) 404

(2) 431
 (5) 694
 (8) 476

(3) 442
 (6) 484

AVOID THE TEMPTATION TO LOOK
AT THE KEYS.

(9) 987
465
321
223
123
654
456
789

(10) 879
312
654
564
446
544
445
456

(11) 369
258
147
741
852
963
789
123

(12) 147
258
369
366
588
885
744
255

(13) 567
675
674
357
963
852
321
654

(14) 465
987
321
123
789
456
654
963

(15) 963
369
789
987
258
852
741
147

(16) 744
446
669
558
122
332
556
665

DO NOT FOLLOW THE COLUMN OF NUMBERS
WITH YOUR LEFT INDEX FINGER

Answers

(9) 4,018
(12) 3,612
(15) 5,106

(10) 4,300
(13) 5,063
(16) 4,092

(11) 4,242
(14) 4,758

(17) 70
20
30
40
90
80
60
50

(18) 60
40
90
80
70
70
70
40

(19) 30
20
80
80
60
60
30
40

(20) 50
60
80
90
20
30
60
60

(21) 300
400
430
403
304
340
340
430

(22) 300
400
430
403
304
340
340
430

(23) 500
504
605
506
600
500
400
450

(24) 100
102
202
200
302
300
303
103

KEEP YOUR EYES ON YOUR COPY!

Answers

(17) 440

(18) 520

(19) 400

(20) 450

(21) 2,947

(22) 2,947

(23) 4,065

(24) 1,612

(25) 700
800
900
909
808
707
708
809

(26) 908
960
690
820
205
704
400
700

(27) 300
306
690
700
740
407
401
140

(28) 850
805
508
502
960
630
306
401

(29) 123
456
789
321
654
987
321
654

(30) 404
604
470
960
620
206
704
420

(31) 906
405
506
456
321
789
406
604

(32) 676
848
978
697
789
321
654
604

READ EACH ITEM AS A UNIT.

Answers

(25) 6,341

(26) 5,387

(27) 3,684

(28) 4,962

(29) 4,305

(30) 4,388

(31) 4,393

(32) 5,567

(33) .39
.47
.28
.25
.14
.17
.69
.36

(34) .78
.89
.79
.56
.45
.46
.64
.97

(35) .31
.12
.21
.22
.33
.13
.32
.23

(36) .87
.98
.65
.56
.23
.32
.78
.96

(37) .40
.44
.76
.32
.13
.03
.33
.67

(38) .50
.05
.55
.42
.24
.44
.45
.40

(39) .99
.66
.06
.60
.99
.90
.96
.69

(40) .47
.41
.14
.40
.70
.04
.07
.77

DID YOU WRITE THE DECIMAL
POINT IN YOUR ANSWER?

(33) 2.75

(34) 5.54

(35) 1.87

(36) 5.35

(37) 3.08

(38) 3.05

(39) 5.85

(40) 3.00

(41) 14.70
 14.74
 7.44
 4.07
 4.77
 7.04
 44.70
5.00

ST

23.05
 17.80
 58.96
 32.10
 63.90
 4.21
 3.69
30.60

ST

7.80
 17.40
 12.39
 4.98
 15.41
 333.92
4.88

T

(42) 89.70
 45.06
 1.23
 13.02
 7.90
 21.30
 32.20
7.90

ST

25.78
 14.71
 4.85
 5.96
 20.30
 58.20
 89.75
605.30

ST

144.50
 29.46
 723.21
 192.70
 287.67
 9.98
70.07

T

(43) 43.80
 19.25
 204.80
 24.75
 19.98
 34.20
 29.85
3.50

ST

65.50
 5.75
 7.77
 39.65
 36.43
 10.45
 639.80
.96

ST

21.56
 14.61
 6.06
 17.39
 36.43
 147.48
45.87

T

Answers

(41) 102.46 ST
 336.77 ST
 733.55 T

(42) 218.31 ST
 1,043.16 ST
 2,500.75 T

(43) 380.13 ST
 1,186.44 ST
 1,475.84 T

Subtraction

Answers

(1) $\begin{array}{r} 795.20 \\ -399.85 \\ \hline \end{array}$	(2) $\begin{array}{r} 325.16 \\ -204.98 \\ \hline \end{array}$	(3) $\begin{array}{r} 277.34 \\ -69.85 \\ \hline \end{array}$	(1) 395.35
			(2) 120.18
(4) $\begin{array}{r} 469.85 \\ -377.89 \\ \hline \end{array}$	(5) $\begin{array}{r} 311.42 \\ -14.63 \\ \hline \end{array}$	(6) $\begin{array}{r} 189.67 \\ -145.30 \\ \hline \end{array}$	(3) 207.49
			(4) 91.96
(7) $\begin{array}{r} 3,469.25 \\ -985.60 \\ \hline \end{array}$	(8) $\begin{array}{r} 2,724.86 \\ -924.17 \\ \hline \end{array}$	(9) $\begin{array}{r} 1,300.00 \\ -894.16 \\ \hline \end{array}$	(5) 296.79
			(6) 44.37
(10) $\begin{array}{r} 554.11 \\ -700.00 \\ \hline \end{array}$	(11) $\begin{array}{r} 1,875.20 \\ -2,450.00 \\ \hline \end{array}$	(12) $\begin{array}{r} 204.75 \\ -824.19 \\ \hline \end{array}$	(7) 2,483.65
			(8) 1,800.69
			(9) 405.84
			(10) 145.89 Cr.

DID YOU INDICATE A CREDIT ANSWER?

(13) $\begin{array}{r} 205.88 \\ -990.40 \\ \hline \end{array}$	(14) $\begin{array}{r} 192.03 \\ -636.40 \\ \hline \end{array}$	(15) $\begin{array}{r} 1,367.15 \\ -6,412.55 \\ \hline \end{array}$	(11) 574.80 Cr.
			(12) 619.44 Cr.
(16) $\begin{array}{r} 157.60 \\ -29.85 \\ \hline \end{array}$	(17) $\begin{array}{r} 76.50 \\ -91.80 \\ \hline \end{array}$	(18) $\begin{array}{r} 513.34 \\ -416.88 \\ \hline \end{array}$	(13) 784.52 Cr.
			(14) 444.37 Cr.
			(15) 5,045.40 Cr.
			(16) 127.75
			(17) 15.30 Cr.
			(18) 96.46

Multiplication

Answers

(1) $45 \times 16 =$

(2) $19 \times 35 =$

(1) 720

(3) $104 \times 66 =$

(4) $24 \times 745 =$

(2) 665

(5) $91 \times 125 =$

(6) $645 \times 88 =$

(3) 6,864

DID YOU INDEX THE LARGER NUMBER?

(4) 17,880

(5) 11,375

(7) $406 \times 89 =$

(8) $45 \times 421 =$

(6) 56,760

(9) $322 \times 5 =$

(10) $542 \times 21 =$

(7) 36,134

(11) $28 \times 96 =$

(12) $775 \times 24 =$

(8) 18,945

ARE YOU USING THE SHORTCUT METHOD?

(9) 1,610

(10) 11,382

(13) $638 \times 99 =$

(14) $778 \times 95 =$

(11) 2,688

(15) $189 \times 29 =$

(16) $1,970 \times 84 =$

(12) 18,624

(17) $238 \times 127 =$

(18) $1,970 \times 8 =$

(13) 63,162

(19) $826 \times 70 =$

(20) $627 \times 15 =$

(14) 73,910

(21) $305 \times 77 =$

(15) 5,481

(16) 165,480

(17) 30,226

(18) 15,760

(19) 57,820

(20) 9,405

(21) 23,485

Multiplying Decimals

Answers

(22) $4.4 \times 6.9 =$

(23) $23.7 \times 45 =$

(22) 30.36

(24) $15.95 \times 16 =$

(23) 5,066.5

(24) 255.20

DID YOU ADD THE NUMBER OF DECIMAL POINTS IN THE MULTIPLICAND TO THE NUMBER OF DECIMAL POINTS IN THE MULTIPLIER TO FIND OUT HOW MANY DECIMAL PLACES TO MARK OFF IN THE PRODUCT?

(25) 73.1

(26) 3,240.58

(27) 316.62

(28) 3.766

(29) 578.2

(25) $14.62 \times 5 =$

(26) $41.02 \times 79 =$

(30) 225

(27) $35.18 \times 9 =$

(28) $75.32 \times .05 =$

(31) 9,868.32

(29) $8.26 \times 70 =$

(30) $900 \times .25 =$

(32) 652.5

(31) $411.18 \times 24 =$

(32) $2.9 \times 225 =$

(33) 102.06

(33) $17.01 \times 6 =$

(34) $56.78 \times 15 =$

(34) 851.70

(35) $21 \times .75 =$

(36) $2.5 \times 140 =$

(35) 15.75

(36) 350

Accumulative Multiplication

Answers

(1) 25×19
 4×32
 10×16
 25×62

(2) 17×801
 33×65
 5×102
 12×44

(1) 2,313

(2) 16,800

(3) 6,450

(4) 15,447

(3) 99×53
 15×15
 4×87
 45×14

(4) 701×3
 10×8
 601×22
 6×7

(5) 63,698

(6) 14,196

(7) 3,666

(5) 45×12
 25×62
 897×56
 72×158

(6) 414×15
 951×5
 149×21
 17×6

(8) 20,652

(9) 23,503

(10) 1,059

(11) 1,144

(12) 4,630

YOU WILL SAVE TIME BY USING THE SHORT-CUT METHOD.

(7) 42×67
 8×19
 6×78
 58×4

(8) 78×12
 212×79
 74×32
 50×12

(9) 18×345
 23×452
 95×15
 12×456

(10) 18×13
 14×9
 9×75
 8×3

(11) 21×21
 6×91
 14×8
 3×15

(12) 32×50
 15×79
 12×35
 95×15

Negative Multiplication

	Answers
(1) $(61 \times 7) - (14 \times 24) =$	(1) 91
(2) $(42 \times 75) - (21 \times 8) =$	(2) 2,982
(3) $(3 \times 42) - (7 \times 9) =$	(3) 63
(4) $(45 \times 12) - (56 \times 72) =$	(4) 3,492 Cr.
(5) $(124 \times 10) - (24 \times 6) =$	(5) 1,096
(6) $(401 \times 16) - (31 \times 18) =$	(6) 5,858
(7) $(325 \times 16) - (302 \times 7) =$	(7) 3,086
(8) $(183 \times 17) - (42 \times 15) =$	(8) 2,481
(9) $(301 \times 95) - (7 \times 14) =$	(9) 28,497
(10) $(91 \times 3) - (12 \times 35) =$	(10) 147 Cr.
(11) $(24 \times 6) - (12 \times 20) =$	(11) 96 Cr.
(12) $(11 \times 14) - (15 \times 5) =$	(12) 79

Multifactor Multiplication

Answers

(1) $3 \times 16 \times 4 =$	(1) 192
(2) $91 \times 20 \times 7 =$	(2) 12,740
(3) $41 \times 16 \times 4 =$	(3) 2,624
(4) $3 \times 8 \times 17 =$	(4) 408
(5) $41 \times 7 \times 12 =$	(5) 3,444
(6) $3 \times 16 \times 21 =$	(6) 1,008
(7) $42 \times 12 \times 4 =$	(7) 2,016
(8) $31 \times 14 \times 7 =$	(8) 3,038
(9) $36 \times 22 \times 6 =$	(9) 4,752
(10) $175 \times 82 \times 23 =$	(10) 330,050
(11) $59 \times 31 \times 21 =$	(11) 38,409
(12) $55 \times 25 \times 16 =$	(12) 22,000

Division

Remember that division on a ten key adding-listing machine is not automatic, so it is performed by using reciprocals. A chart of reciprocals is found in the back of this workbook. Round the reciprocals off to five decimal places.

- (1) $795 \div 4 =$ (2) $497 \div 40 =$
(3) $129 \div 25 =$ (4) $4,545 \div 114 =$
(5) $6,667 \div 120 =$ (6) $8,333 \div 5 =$
(7) $3,833 \div 31 =$ (8) $9,673 \div 19 =$
(9) $377 \div 82 =$ (10) $195 \div 32 =$

On the Victor machine, be sure to use the decimal indicator to locate decimals.

- (11) $478 \div 50 =$ (12) $4,250 \div 55 =$
(13) $419 \div 35 =$ (14) $66,225 \div 6 =$
(15) $2,283 \div 44 =$ (16) $18,870 \div 122 =$
(17) $892 \div 49 =$ (18) $991 \div 75 =$
(19) $952 \div 54 =$ (20) $743 \div 72 =$

Answers

1. 198.75
2. 12.425
3. 5.16
4. 39.85965
5. 55.53611
6. 1666.6
7. 123.65258
8. 509.08999
9. 4.5994
10. 6.09375
11. 9.56
12. 77.265
13. 11.97083
14. 11,037.72075
15. 51.89259
16. 154.734
17. 18.20572
18. 13.21003
19. 17.63104
20. 10.32027

Division with Fractions

Answers

(21) $1075 \div 1 \frac{1}{4} =$

Remember to convert fractions to decimals: $1 \frac{1}{4} = 1.25$

When you found the reciprocal for 125, did you remember to move the decimal point two places to the right? Because of the two decimal points in the divisor.

- 21. 860
- 22. 237.274
- 23. 180
- 24. 80.1435
- 25. 9.88191
- 26. 1,684.16
- 27. 475.686
- 28. 10.353
- 29. 527.78055
- 30. 15

(22) $1780 \div 7 \frac{1}{2} =$

(23) $45 \div \frac{1}{4} =$

(24) $529 \div 6.6 =$

(25) $64.21 \div 6 \frac{1}{2} =$

(26) $320 \div .19 =$

(27) $414 \div .87 =$

(28) $119 \div 11.5 =$

(29) $47,505 \div 90 =$

(30) $375 \div 25 =$

You have had an opportunity to work problems of each kind on the pretest. I suggest that you take the following sample post test to determine whether or not you need additional practice before taking the post test.

Please follow the same directions given for the pretest.

SAMPLE POST TEST

10-Key Adding-Listing Machine

1. 4.19
 7.42
 5.80
 4.25
 7.89
 9.33
 7.45
2.50

2. 45.30
 78.62
 19.95
 47.32
 29.61
 69.45
 42.33
27.64

3. 250.85
 504.20
 70.20
 336.98
 79.40
 205.19
 89.45
176.34

4. 2,435.62
 3,701.22
 6,324.19
 9,421.50
 741.97
 2.01
 75.40
1,204.25

5. 19.65
 450.32
 795.20
 20.40
 321.16
 9,842.55
 421.95
25.00

6. 45.90
 42.75
 100.54
 17.95
 4.50
 496.75
 4,201.13
1.19

7. $205 \times 16 =$

8. $421 \times 86 =$

9. $4019 \times 211 =$

10. $4325 \times 75 =$

11. $2902 \times 632 =$

12. $3.39 \times 2.5 =$

13. $14.95 \times 975 =$

14. $75 \div 6 =$
 (reciprocal of 6 is .16667)

15. $419 \div 40 =$
 (reciprocal of 40 is .025)

16. $74.25 \div 33 =$
 (reciprocal of 33 is .0303)

17. $3426 \div 66 \frac{1}{2} =$
(reciprocal of 665 is .0015)

18. $24,397 \div 999 =$
(reciprocal of 999 is .001)

19. $478 \div \frac{1}{5} =$
(reciprocal of 20 is .05)

20. 104.02
 -19.88

21. $419,959.40$
 $-47,201.98$

22. $16,321$
 $-19,000$

23. 23×136
 99×114
 94×37
 75×11

24. $(236 \times 11) - (37 \times 75) =$

25. $95 \times 72 \times 21 =$

ANSWERS TO SAMPLE POST TEST

10-Key Adding-Listing Machine

1.	48.83	14.	12.50025
2.	360.22	15.	10.475
3.	1,712.61	16.	2.24978
4.	23,906.16	17.	51.390
5.	11,896.23	18.	24.397
6.	4,910.71	19.	2,390
7.	3,280	20.	84.14
8.	36,206	21.	372,757.42
9.	848,009	22.	2,679 Cr.
10.	324,375	23.	18,717
11.	1,834,064	24.	179 Cr.
12.	8.475	25.	143,640
13.	14,576.25		

If the sample post test indicates that you are ready for the post test, please ask me for it. If you feel you need further practice, please work additional problems of the type which gave you difficulty. Supplementary problems can be found in the back of the workbook.

FULL KEYBOARD ADDING-LISTING MACHINE

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THE FULL KEYBOARD ADDING-LISTING MACHINE

The full keyboard adding-listing machine is easy to recognize because it has a full keyboard and a paper tape on which each calculation is listed.

There are other machines in the classroom which have a full keyboard and other machines which have a paper tape, but none with a combination of the two.

The full keyboard adding-listing machine is used primarily for adding; however, subtraction, multiplication, and division are also possible.

There are several different makes and models of the full keyboard adding-listing machines on the market, and they are all operated the same way. In this class we will use the Victor.

The objective is for you to work correctly 23 problems out of 25 in 20 minutes.

Perhaps some of you who have had office experience of office machines in high school already know how to operate a full keyboard adding-listing machine. At this point you should take the pretest on the following pages to see if you need further instruction and practice on the full keyboard adding-listing machine.

PRETEST FOR FULL KEYBOARD ADDING-LISTING MACHINE

Time yourself for 20 minutes. Work quickly. Work each problem one time. If you finish in less than 20 minutes, use the remaining time to check your answers.

1. Round all reciprocals off to five decimal places.
2. Round all decimal equivalents off to five decimal places.
3. Round all products off to five decimal places.
4. Punctuate all answers with commas and decimal points.
5. Indicate special notations in answers, such as Cr., %, etc.
6. Number each problem with the non-add key.

PRETEST ON FULL KEYBOARD ADDING-LISTING MACHINE

1. 764
 327
 421
 985
 719
 698
 301
222

2. 401
 614
 195
 762
 534
 299
 883
929

3. 15.75
 48.72
 55.41
 38.38
 36.68
 532.94
 893.25
47.87

4. 1,484.20
 3,201.17
 44.60
 302.90
 2,624.32
 476.15
 97.02
325.16

5. 96.31
 417.62
 54.98
 302.44
 1,106.18
 18.18
 2.01
16.20

6. 82.31
 16.79
 4.49
 207.75
 3,721.84
 7.99
 24.68
19.19

7. $75 \times 16 =$

8. $224 \times 95 =$

9. $415 \times 26 =$

10. $7,422 \times 66 =$

11. $1,995 \times 421 =$

12. $3.26 \times 4.9 =$

13. $16.15 \times 22 =$

14. $419 \div 92 =$
 (reciprocal of 92 is .01087)

15. $5,442 \div 12 \frac{1}{2} =$
 (reciprocal of 125 is .008)

16. $8,889 \div 32 =$
 (reciprocal of 32 is .03125)

17. $875 \div \frac{1}{4} =$
 (reciprocal of 25 is .04)

18. $2,545 \div 5 =$
 (reciprocal of 5 is .2)

19. $729 \div 16 =$
 (reciprocal of 16 is .0625)

20. 419.20
-322.19

21. 889.50
-74.95

22. 196.08
-425.00

23. 166.67
-220.10

24. 18,321.40
-2,749.88

25. 6,543.90
-4,201.35

ANSWERS TO PRETEST ON FULL KEYBOARD ADDING-LISTING MACHINE

- | | |
|-------------|----------------|
| 1. 4,437 | 14. 4.55453 |
| 2. 4,617 | 15. 435.36 |
| 3. 1,669.00 | 16. 277.78125 |
| 4. 8,555.52 | 17. 3,500 |
| 5. 2,013.92 | 18. 509 |
| 6. 4,085.04 | 19. 45.5625 |
| 7. 1,200 | 20. 97.01 |
| 8. 21,280 | 21. 814.55 |
| 9. 10,790 | 22. 228.92 Cr. |
| 10. 489,852 | 23. 53.43 Cr. |
| 11. 839,895 | 24. 15,571.52 |
| 12. 15.974 | 25. 2,342.55 |
| 13. 355.3 | |

If the pretest indicates that the stated objective has been met, ask me for the post test.

If the pretest indicates that further study and practice would be helpful, select one of the full keyboard adding-listing machines in your classroom and have it in front of you as you view film No. 8 and listen to tape No. 8.

PROBLEMS FOR FULL KEYBOARD ADDING-LISTING MACHINE

Addition

Answers

1. 22	2. 202	3. 14	4. 33	1. 385
44	40	11	22	2. 1,979
55	330	19	34	3. 124
77	404	17	45	4. 312
88	50	18	23	5. 382
33	505	15	44	6. 1,782
44	44	17	56	7. 2,194
<u>22</u>	<u>404</u>	<u>13</u>	<u>55</u>	8. 2,810

Remember to use the correct finger techniques demonstrated in the film

5. 51	6. 120	7. 220	8. 300
31	102	320	400
61	304	202	500
21	40	302	550
62	403	330	50
72	430	300	40
52	340	200	430
<u>32</u>	<u>43</u>	<u>320</u>	<u>540</u>

Are you depressing the key and the plus bar simultaneously?

Answers

9. 401	10. 450	11. 206	12. 421	9. 3,379
310	540	107	311	10. 2,561
130	45	702	110	11. 2,499
702	607	72	542	12. 2,038
607	70	721	31	
421	706	27	471	
107	76	62	91	
<u>701</u>	<u>67</u>	<u>602</u>	<u>61</u>	

13.	345	14.	123	15.	789	16.	412
	627		456		87		455
	421		388		91		678
	892		88		801		871
	723		98		891		596
	407		465		101		69
	89		76		81		456
	<u>388</u>		<u>234</u>		<u>907</u>		<u>626</u>

Answers

13. 3,892
 14. 1,928
 15. 3,748
 16. 4,163

17.	17.95	18.	27.95	19.	71.85	20.	4.05
	4.98		24.89		4.95		.55
	7.91		.75		28.00		7.95
	8.26		1.70		4.56		6.50
	4.21		14.41		19.00		71.89
	22.50		34.05		6.00		24.05
	9.00		27.00		4.50		56.45
	<u>.75</u>		<u>63.70</u>		<u>9.80</u>		<u>.95</u>

Answers

17. 75.56
 18. 194.45
 19. 148.66
 20. 172.39
 21. 278.09
 22. 250.34
 23. 296.78
 24. 876.22

21.	9.50	22.	75.00	23.	79.99	24.	63.70
	99.50		57.00		9.00		345.20
	4.90		6.71		2.29		47.85
	75.00		7.95		14.14		18.95
	45.54		9.80		22.64		10.72
	4.90		40.70		84.16		124.00
	28.80		7.98		50.50		200.80
	<u>9.95</u>		<u>45.20</u>		<u>34.06</u>		<u>65.00</u>

Addition Subtotals

Answers

(25)	7.77	(26)	19.45	(27)	33.60	(25)	105.33	ST
	4.75		7.80		48.75		673.96	ST
	7.95		9.25		9.50		1,017.21	T
	4.99		49.99		18.75			
	6.89		8.20		34.20			
	7.98		4.01		8.95			
	<u>65.00</u>		<u>17.60</u>		<u>400.70</u>	(26)	116.30	ST
	ST		ST		ST		598.70	ST
	55.05		23.40		2.88		925.16	T
	3.21		400.75		80.75			
	3.45		19.40		19.25	(27)	554.45	ST
	162.00		4.35		3.60		731.45	ST
	200.80		7.80		17.50		1,115.35	T
	80.12		19.50		44.02			
	<u>64.00</u>		<u>7.20</u>		<u>9.00</u>			
	ST		ST		ST			
	3.75		124.00		15.00			
	17.95		19.45		30.52			
	77.53		45.00		99.25			
	4.50		1.50		147.80			
	88.50		3.21		80.99			
	80.12		7.80		4.25			
	<u>70.90</u>		<u>125.50</u>		<u>6.09</u>			
	T		T		T			

(28) 4.23
 245.90
 730.41
 71.00
 373.17
 19.85
45.98

ST

19.00
 4.75
 7.70
 18.36
 102.50
 52.45
19.80

ST

34.50
 199.88
 4.70
 15.45
 19.85
 7.90
2.25

T

(29) 37.90
 425.60
 7.80
 398.50
 4.75
 9.45
16.50

ST

250.00
 75.00
 8.90
 14.80
 7.20
 13.98
7.50

ST

41.20
 20.00
 170.00
 4.08
 8.00
 978.40
18.00

T

(30) .47
 1.84
 11.10
 17.95
 1.80
 3.20
48.70

ST

14.27
 43.26
 4.00
 17.95
 11.80
 21.50
4.60

ST

3.25
 4.80
 9.00
 14.75
 38.95
 41.20
165.20

T

Answers

(28) 1,490.54 ST
 1,715.10 ST
 1,999.63 T

(29) 900.50 ST
 1,277.88 ST
 2,517.56 T

(30) 85.06 ST
 202.44 ST
 479.59 T

Answers

(31) 9.50
9.50
9.50
9.50
13.00
13.00
13.00
13.00

(32) 2.44
2.44
2.44
2.44
15.00
15.00
15.00
15.00

(33) 17.00
17.00
17.00
17.00
17.00
3.24
3.24
3.24

(31) 90.00
(32) 69.76
(33) 94.72
(34) 181.20
(35) 147.32

(34) 26.30
26.30
26.30
26.30
19.00
19.00
19.00
19.00

(35) 14.39
14.39
14.39
14.39
22.44
22.44
22.44
22.44

(36) 17.95
17.95
17.95
17.95
62.37
62.37
62.37
62.37

(36) 321.28
(37) 148.50
(38) 219.48

(37) 8.00
8.00
8.00
19.50
19.50
19.50
33.00
33.00

(38) 12.50
12.50
12.50
12.50
42.37
42.37
42.37
42.37

Answers

(39) 7.95
7.95
7.95

ST

12.35
12.35
12.35

ST

29.30
29.30
29.30

T

(42) 19.95
42.65
79.50
32.44
18.25
224.04
14.88
76.70
12.50
20.00

(40) 92.70
92.70
92.70

ST

37.00
37.00
37.00

ST

32.44
32.44
32.44

T

(43) 25.00
43.25
8.00
15.00
3.50
46.00
17.00
4.95
92.00
17.00

(41) 6.12
6.12
6.12

ST

9.22
9.22
9.22

ST

3.65
3.65
3.65

T

(44) 23.95
42.50
97.80
425.70
31.25
17.80
980.90
17.60
4.95
9.98

(39) 23.85 ST

60.90 ST

148.80 T

(40) 278.10 ST

389.10 ST

486.42 T

(41) 18.36 ST

46.02 ST

56.97 T

(42) 540.91

(43) 271.70

(44) 1,652.43

- (45) $17.00 + 27.00 + 4.95 + 15.85 + 19.00 =$
(46) $195.00 + 63.50 + 66.00 + 87.66 + 99.75 =$
(47) $32.50 + 88.00 + 4.62 + 35.88 + 97.45 =$
(48) $43.50 + 10.80 + 14.89 + 9.09 + 402.25 =$
(49) $125.80 + 99.85 + 47.50 + 66.95 + 35.66 =$
(50) $42.50 + 87.90 + 77.85 + 32.50 + 32.50 =$

Answers

- (45) 83.80
(46) 511.91
(47) 258.45
(48) 480.53
(49) 375.76
(50) 273.25

- | | | |
|-------------------------|-------------------------|-------------------------|
| (1) 970.85
- 421.06 | (2) 495.33
- 390.66 | (3) 124.85
- 88.66 |
| (4) 49.76
- 7.09 | (5) 887.42
- 605.18 | (6) 786.50
- 704.23 |
| (7) 189.50
- 86.32 | (8) 245.90
- 29.30 | (9) 143.66
- 69.88 |
| (10) 246.19
- 57.26 | (11) 45.32
- 12.11 | (12) 19.70
- 32.90 |
| (13) 187.66
- 302.99 | (14) 245.20
- 755.16 | (15) 602.20
- 843.16 |
| (16) 98.15
- 421.60 | (17) 804.74
- 98.16 | (18) 189.60
- 204.45 |
| (19) 899.60
- 900.42 | (20) 134.50
- 217.99 | (21) 17.98
- 43.16 |
| (22) 25.98
- 32.16 | (23) 168.40
- 29.30 | (24) 175.99
- 215.62 |

Answers

- (1) 549.79
(2) 104.67
(3) 36.19
(4) 42.67
(5) 282.24
(6) 82.27
(7) 103.18
(8) 216.60
(9) 73.78
(10) 188.93
(11) 33.21
(12) 13.20 Cr.
(13) 115.33 Cr.
(14) 509.96 Cr.
(15) 240.96 Cr.
(16) 323.45 Cr.
(17) 706.58
(18) 14.85 Cr.
(19) .82 Cr.
(20) 83.49 Cr.
(21) 25.18 Cr.
(22) 6.18 Cr.
(23) 138.60
(24) 39.63 Cr.

Answers

Multiplication

(1) 405 x 16 =	(2) 399 x 22 =	(1) 6,480
(3) 688 x 32 =	(4) 1795 x 421 =	(2) 8,778
(5) 799 x 60 =	(6) 24 x 86 =	(3) 22,016
(7) 167 x 19 =	(8) 204 x 642 =	(4) 755,695
(9) 67 x 211 =	(10) 4.02 x .75 =	(5) 47,940
(11) 263 x .25 =	(12) 19.95 x 3.5 =	(6) 2,064
		(7) 3,173
		(8) 130,968
		(9) 14,137
(13) 3.575 x 4 =	(14) 19.8 x 66 =	(10) 3.015
(15) 263 x 3.5 =	(16) 244 x .85 =	(11) 65.75
(17) 7.75 x .25 =	(18) 42 x 4.5 =	(12) 69.825
(19) 78 x 3.07 =	(20) 19 x 4.25 =	(13) 14.3
(21) 475 x 3.75 =	(22) 41 x 9.33 =	(14) 1,306.8
(23) 278 x 8.5 =	(24) 425 x .85 =	(15) 920.5
		(16) 207.4
		(17) 1.9375
		(18) 189
		(19) 239.46
		(20) 80.75
		(21) 1,781.25
		(22) 382.53
		(23) 2,363
		(24) 361.25

Did you mark off decimal points?

DivisionAnswers

(1) $795 \div 12 =$ (2) $1450 \div 78 =$

(3) $425 \div 16 =$ (4) $3250 \div 87 =$

Reciprocals in back of workbook.

(5) $1895 \div 42 =$ (6) $660 \div 33 =$

(7) $263 \div 4 \frac{1}{2} =$ (8) $1675 \div \frac{4}{5} =$

(9) $1325 \div \frac{1}{4} =$ (10) $1795 \div 75 =$

(11) $2250 \div 32 =$ (12) $435 \div 65 =$

(13) $329 \div 60 =$ (14) $180 \div 50 =$

(15) $225 \div 90 =$ (16) $740 \div 25 =$

(17) $440 \div 64 =$ (18) $2632 \div 75 =$

(19) $2495 \div 16 =$ (20) $1732 \div 51 =$

(21) $600 \div 15 =$ (22) $750 \div 62 =$

(23) $195 \div 45 =$ (24) $145 \div 13 =$

(1) 66.24735

(2) 18.589

(3) 26.5625

(4) 37.3425

(5) 45.11995

(6) 19.998

(7) 58.4386

(8) 2,093.75

(9) 5,300

(10) 23.92735

(11) 70.3125

(12) 6.69465

(13) 5.48443

(14) 3.6

(15) 2.49975

(16) 29.6

(17) 6.8777

(18) 35.08456

(19) 155.9375

(20) 33.96452

(21) 40.0002

(22) 12.0975

(23) 4.3399

(24) 11.1534

Do you remember how to handle reciprocals for numbers containing decimals?

You have had an opportunity to work problems of each kind on the pretest. I suggest that you take the following sample post test to determine whether or not you need additional practice before taking the post test.

Please follow the same directions given for the pretest.

Remember: Round all reciprocals off to five decimal places.

SAMPLE POST-TEST FOR FULL KEYBOARD ADDING-LISTING MACHINE

(1) 1.25	(2) 477	(3) 42.25	(4) 4,761.44
6.22	626	17.21	8,418.16
9.18	324	102.77	112.40
7.21	800	99.88	190.16
4.07	727	17.24	17.23
2.88	325	326.19	476.20
7.04	819	1,421.00	24.70
<u>7.19</u>	<u>704</u>	<u>4.97</u>	<u>9.64</u>

(5) 95.32	(6) 7.27
17.88	8.19
4.21	40.22
302.16	4.26
4,317.82	317.19
19.21	4.98
418.19	1,602.21
<u>1.12</u>	<u>24.70</u>

- | | |
|---|---|
| (7) $306 \times 14 =$ | (8) $195 \times 74 =$ |
| (9) $3028 \times 322 =$ | (10) $5216 \times 64 =$ |
| (11) $1803 \times 513 =$ | (12) $4.16 \times 1.6 =$ |
| (13) $16.21 \times 742 =$ | (14) $64 \div 4 =$
(reciprocal of 4 is .25) |
| (15) $421 \div 40 =$
(reciprocal of 40 is .025) | (16) $29.75 \div 33 =$
(reciprocal of 33 is .0303) |
| (17) $2316 \div 66 \frac{1}{2} =$
(reciprocal of 665 is .0015) | (18) $32,364 \div 999 =$
(reciprocal of 999 is .001) |
| (19) $362 \div \frac{1}{5} =$
(reciprocal of 20 is .05) | |

Sample Post Test (cont'd)

$$\begin{array}{r} (20) \quad 316.42 \\ \quad - 89.67 \\ \hline \end{array}$$

$$\begin{array}{r} (21) \quad 819.80 \\ \quad - 629.99 \\ \hline \end{array}$$

$$\begin{array}{r} (22) \quad 704.32 \\ \quad - 900.00 \\ \hline \end{array}$$

$$\begin{array}{r} (23) \quad 4,146.80 \\ \quad - 3,998.76 \\ \hline \end{array}$$

$$\begin{array}{r} (24) \quad 15.95 \\ \quad - 12.36 \\ \hline \end{array}$$

$$\begin{array}{r} (25) \quad 14,624 \\ \quad - 18,000 \\ \hline \end{array}$$

ANSWERS TO SAMPLE POST TEST

Full Keyboard Adding - Listing Machine

- | | |
|----------------|-----------------|
| (1) 45.04 | (14) 16 |
| (2) 4,802 | (15) 10.525 |
| (3) 2,031.51 | (16) .901425 |
| (4) 14,009.93 | (17) 34.74 |
| (5) 5,175.91 | (18) 32.364 |
| (6) 2,009.02 | (19) 1,810 |
| (7) 4,284 | (20) 226.75 |
| (8) 14,430 | (21) 189.81 |
| (9) 975,016 | (22) 195.68 Cr. |
| (10) 333,824 | (23) 148.04 |
| (11) 924,939 | (24) 3.59 |
| (12) 6.656 | (25) 3,376 Cr. |
| (13) 12,027.82 | |

If the sample post test indicates that you are ready for the post test, please ask me for it. If you feel you need further practice, please work additional problems of the type which gave you difficulty. Supplementary problems can be found in the back of the workbook.

REQUEST FOR REPAIR SERVICE

Date

(Description of machine)

Equipment number

Nature of Problem

Name

REQUEST FOR REPAIR SERVICE

Date

(Description of machine)

Equipment number

Nature of Problem

Name

155

1-30



REQUEST FOR REPAIR SERVICE

Date

(Description of machine)

Equipment number

Nature of Problem

Name

SUPPLEMENTARY PROBLEMS

Addition

1.	44	2.	45	3.	12	4.	78	5.	47
	22		56		21		87		65
	33		66		31		77		32
	55		44		32		88		21
	33		54		13		98		89
	44		64		23		89		76
	22		46		33		97		88
	<u>44</u>		<u>55</u>		<u>22</u>		<u>79</u>		<u>34</u>
6.	24	7.	19	8.	45	9.	505	10.	990
	35		24		32		404		875
	79		76		98		504		333
	84		44		78		405		782
	34		32		67		302		901
	27		25		43		200		324
	41		87		22		604		964
	<u>87</u>		<u>96</u>		<u>85</u>		<u>400</u>		<u>342</u>
11.	291	12.	799	13.	789	14.	421	15.	780
	380		987		963		604		620
	671		741		258		321		304
	932		825		987		198		708
	421		369		321		720		300
	674		699		471		401		405
	487		852		989		322		706
	<u>204</u>		<u>456</u>		<u>340</u>		<u>780</u>		<u>600</u>

Answers

1.	297
2.	430
3.	187
4.	693
5.	452
6.	411
7.	403
8.	470
9.	3,324
10.	5,511
11.	4,060
12.	5,728
13.	5,118
14.	3,767
15.	4,423

Subtotals

16.	251.60	17.	591.06	18.	72.89	19.	9.12
	39.05		61.37		41.57		14.59
	<u>201.55</u>		<u>206.15</u>		<u>32.20</u>		<u>12.98</u>
	S		S		S		S
	2.31		3.21		-25.80		- 8.48
	19.58		92.57		3.21		-22.64
	<u>237.59</u>		<u>19.85</u>		<u>10.99</u>		<u>1.77</u>
	T		T		T		T

Answers

16.	492.20	ST
	751.68	T
17.	858.58	ST
	974.21	T
18.	146.66	ST
	135.06	T
19.	36.69	ST
	7.34	T

20.	42.23	21.	8.94
	71.59		13.42
	<u>14.26</u>		<u>4.74</u>
	S		S
	- 4.20		30.31
	12.30		-68.77
	<u>1.04</u>		<u>4.53</u>
	T		T

Answers

20.	128.08	ST
	137.22	T
21.	27.10	ST
	6.83	T Cr

Repeated Numbers

22.	33.68	23.	241.59	24.	25.06
	33.68		241.59		25.06
	33.68		241.59		25.06
	15.05		897.81		25.06
	15.05		897.81		15.56
	<u>15.05</u>		<u>897.81</u>		<u>15.56</u>
25.	1,336.96	26.	37.65	27.	97.05
	1,336.96		35.56		97.05
	704.68		35.56		103.53
	704.68		35.56		103.53
	704.68		91.81		533.01
	<u>704.68</u>		<u>91.81</u>		<u>533.01</u>
28.	3,243.75	29.	10.59	30.	3.84
	3,243.75		10.59		12.76
	3,243.75		306.24		12.76
	17.19		306.24		211.33
	17.19		306.24		211.33
	<u>20.36</u>		<u>17.88</u>		<u>211.33</u>

Answers

22.	146.19
23.	3,418.20
24.	131.36
25.	5,492.64
26.	327.95
27.	1,467.18
28.	9,785.99
29.	957.78
30.	663.35

1.7

Subtraction

Answers

1. $\begin{array}{r} 33.45 \\ -7.95 \\ \hline \end{array}$	2. $\begin{array}{r} 21.59 \\ -9.87 \\ \hline \end{array}$	3. $\begin{array}{r} 5.12 \\ -3.71 \\ \hline \end{array}$	4. $\begin{array}{r} 54.89 \\ -12.91 \\ \hline \end{array}$	1. 25.50
				2. 11.72
				3. 1.41
				4. 41.98
				5. 370.54
5. $\begin{array}{r} 891.52 \\ -520.98 \\ \hline \end{array}$	6. $\begin{array}{r} 200.78 \\ -420.24 \\ \hline \end{array}$	7. $\begin{array}{r} 352.89 \\ -549.24 \\ \hline \end{array}$	8. $\begin{array}{r} 635.28 \\ -629.89 \\ \hline \end{array}$	6. 219.46 cr.
				7. 196.35 cr.
				8. 5.39
				9. 31.17 cr.
				10. 24.65 cr.
9. $\begin{array}{r} 489.07 \\ -520.24 \\ \hline \end{array}$	10. $\begin{array}{r} 2.79 \\ 13.87 \\ -35.15 \\ 3.18 \\ -20.25 \\ \hline 10.91 \end{array}$	11. $\begin{array}{r} 3.17 \\ 9.28 \\ -35.15 \\ 3.18 \\ -20.25 \\ \hline 10.91 \end{array}$		11. 28.86 cr.
				12. 278.69
				13. 137.86
				14. 29.62
				15. 23.27 cr.
12. $\begin{array}{r} 401.35 \\ 58.36 \\ -201.05 \\ 13.14 \\ - 2.06 \\ \hline 8.95 \end{array}$	13. $\begin{array}{r} 185.04 \\ -70.33 \\ \hline 23.15 \end{array}$	14. $\begin{array}{r} 41.78 \\ -15.19 \\ \hline 3.03 \end{array}$	15. $\begin{array}{r} -30.24 \\ -3.20 \\ \hline 10.17 \end{array}$	
16. $\begin{array}{r} 6,701 \\ - 519 \\ \hline \end{array}$	17. $\begin{array}{r} 3,478 \\ -1,033 \\ \hline \end{array}$	18. $\begin{array}{r} 4,711 \\ -2,376 \\ \hline \end{array}$	19. $\begin{array}{r} 374,029 \\ -25,000 \\ \hline \end{array}$	
20. $\begin{array}{r} 4,100,462 \\ -2,400,400 \\ \hline \end{array}$	21. $\begin{array}{r} 51,763 \\ -19,742 \\ \hline \end{array}$	22. $\begin{array}{r} 17,299 \\ - 322 \\ \hline \end{array}$		16. 6,182
				17. 2,445
				18. 2,335
				19. 349,029
				20. 1,700,062
				21. 32,021
				22. 16,977
23. $\begin{array}{r} 701 \\ -799 \\ \hline \end{array}$	24. $\begin{array}{r} 4,623 \\ -5,000 \\ \hline \end{array}$	25. $\begin{array}{r} 5,921 \\ -6,735 \\ \hline \end{array}$	26. $\begin{array}{r} 8,932 \\ -10,725 \\ \hline \end{array}$	23. 98 Cr.
				24. 377 Cr.
				25. 814 Cr.
				26. 1,793 Cr.
				27. 754 Cr.
27. $\begin{array}{r} 7,466 \\ -8,220 \\ \hline \end{array}$	28. $\begin{array}{r} 21,325 \\ -25,384 \\ \hline \end{array}$	29. $\begin{array}{r} 44,648 \\ -45,205 \\ \hline \end{array}$		28. 4,059 Cr.
				29. 557 Cr.
				30. 1.29 Cr.
30. $\begin{array}{r} 17.21 \\ -18.50 \\ \hline \end{array}$				

CONSTANTS IN ADDITIONAnswers

- | | | |
|----------------------|---------------------|------------|
| 1. $735 + 425 =$ | 8. $7,564 + 809 =$ | 1. 1,160 |
| $927 + 425 =$ | $6,332 + 809 =$ | 1,352 |
| $4316 + 425 =$ | $5,111 + 809 =$ | 4,741 |
| 2. $432 + 333 =$ | 9. $809 + 204 =$ | 2. 765 |
| $695 + 333 =$ | $403 + 204 =$ | 1,028 |
| $1424 + 333 =$ | $820 + 204 =$ | 1,757 |
| 3. $998 + 601 =$ | 10. $576 + 4,962 =$ | 3. 1,599 |
| $425 + 601 =$ | $3,265 + 4,962 =$ | 1,026 |
| $1690 + 601 =$ | $7,132 + 4,962 =$ | 2,291 |
| 4. $375 + 875 =$ | 11. $4,831 + 202 =$ | 4. 1,250 |
| $432 + 875 =$ | $2,410 + 202 =$ | 1,307 |
| $980 + 875 =$ | $1,200 + 202 =$ | 1,855 |
| 5. $209 + 520 =$ | 12. $9,887 + 488 =$ | 5. 729 |
| $1987 + 520 =$ | $10,446 + 488 =$ | 2,507 |
| $1776 + 520 =$ | $7,998 + 488 =$ | 2,296 |
| 6. $472 + 1983 =$ | | 6. 2,455 |
| $931 + 1983 =$ | | 2,914 |
| $475 + 1983 =$ | | 2,458 |
| 7. $4,245 + 7,432 =$ | | 7. 11,677 |
| $3,789 + 7,432 =$ | | 11,221 |
| $7,305 + 7,432 =$ | | 14,737 |
| | | 8. 8,373 |
| | | 7,141 |
| | | 5,920 |
| | | 9. 1,013 |
| | | 607 |
| | | 1,024 |
| | | 10. 10,538 |
| | | 8,227 |
| | | 12,094 |
| | | 11. 5,033 |
| | | 2,612 |
| | | 1,402 |
| | | 12. 10,375 |
| | | 10,934 |
| | | 8,486 |

CONSTANTS IN SUBTRACTIONAnswers

1. $4,973 - 2,400 =$

$4,785 - 2,400 =$

$3,724 - 2,400 =$

2. $2,865 - 1,200 =$

$3,431 - 1,200 =$

$1,210 - 1,200 =$

3. $5,430 - 4,100 =$

$6,210 - 4,100 =$

$3,795 - 4,100 =$

4. $8,879 - 1,100 =$

$4,453 - 1,100 =$

$2,232 - 1,100 =$

5. $4,462 - 600 =$

$2,981 - 600 =$

$7,840 - 600 =$

6. $3,974 - 200 =$

$1,400 - 200 =$

$7,098 - 200 =$

7. $4,592 - 3,700 =$

$6,002 - 3,700 =$

$8,927 - 3,700 =$

8. $10,874 - 7,300 =$

$12,598 - 7,300 =$

$58,774 - 7,300 =$

9. $7,977 - 2,100 =$

$6,882 - 2,100 =$

$3,411 - 2,100 =$

10. $5,020 - 1,000 =$

$6,719 - 1,000 =$

$4,308 - 1,000 =$

11. $9,880 - 3,500 =$

$7,497 - 3,500 =$

$6,283 - 3,500 =$

12. $7,984 - 3,300 =$

$6,342 - 3,300 =$

$5,121 - 3,300 =$

1. 2,573
2,385
1,324

2. 1,665
2,231
10

3. 1,330
2,110
305 Cr

4. 7,779
3,353
1,132

5. 3,862
2,381
7,240

6. 3,774
1,200
6,898

7. 892
2,302
5,227

8. 3,574
5,298
51,474

9. 5,877
4,722
1,311

10. 4,020
5,719
3,308

11. 6,380
3,997
2,783

12. 4,684
3,042
1,821

Multiplication

Answers

- | | |
|--------------|---------------|
| 1. 306 x 214 | 2. 280 x 314 |
| 3. 306 x 78 | 4. 378 x 514 |
| 5. 384 x 8 | 6. 24 x 11 |
| 7. 49 x 275 | 8. 611 x 304 |
| 9. 116 x 214 | 10. 207 x 304 |

- 65,484
- 87,920
- 23,868
- 194,292
- 3,072
- 264
- 13,475
- 185,744
- 24,824
- 62,928
- 15,075
- 143,412
- 133,056
- 167,128
- 2,347,800
- 4,352,032
- 166,140
- 149,188
- 556,776
- 159,732
- 247
- 214,928
- 164,640
- 57,035
- 206,100
- 100,000
- 82,345

Be sure to punctuate answers

- | | |
|----------------|----------------|
| 11. 75 x 201 | 12. 204 x 703 |
| 13. 264 x 504 | 14. 1607 x 104 |
| 15. 3010 x 780 | 16. 7088 x 614 |
| 17. 213 x 780 | 18. 604 x 247 |
| 19. 684 x 814 | 20. 783 x 204 |
| 21. 13 x 19 | 22. 707 x 304 |
| 23. 210 x 784 | 24. 305 x 187 |
| 25. 300 x 687 | 26. 200 x 500 |
| 27. 383 x 215 | |

MULTIPLICATION OF DECIMALS

Answers

1. 6.4×2.3

2. 2.8×6.7

1. 14.72

2. 18.76

Remember, the sum of the decimals in the multiplier and the multiplicand equals the number of decimal places in the product.

3. 23.936

4. 44.5875

3. $3.4 \times 7.04 =$

4. $20.5 \times 2.175 =$

5. 10.5156

5. $3.81 \times 2.76 =$

6. $5.06 \times 5.04 =$

6. 25.5024

7. $61.3 \times 2.83 =$

8. $10.75 \times 4.35 =$

7. 173.479

9. $2.04 \times 7.13 =$

10. $3.88 \times 9.36 =$

8. 46.7625

11. $3.4 \times 6.3 =$

12. $11.18 \times 25 =$

9. 14.5452

13. $1.64 \times 6.5 =$

14. $.483 \times 96 =$

10. 36.3168

15. $7.5 \times 18 =$

16. $7.95 \times 2.45 =$

11. 21.42

17. $12.6 \times .88 =$

18. $21.6 \times 2.88 =$

12. 279.50

19. $2,821 \times 3.6 =$

20. $18.6 \times 95 =$

13. 10.660

21. $3.04 \times 26 =$

14. 46.368

15. 135.0

16. 19.4775

17. 11.088

18. 62.208

19. 10155.6

20. 1767.0

21. 79.04

Multiplying ConstantsAnswers

1. 364 x 25	2. 364 x 201	1. 9,100
3. 364 x 681	4. 364 x 108	2. 73,164
5. 364 x 11	6. 13 x 110	3.247,884
7. 164 x 110	8. 74 x 110	4. 39,312
9. 64 x 110	10. 107 x 110	5. 4,004
11. 26 yds. at \$1.35 per yd.	12. 14 yds. at \$1.35 per yd.	6. 1,430
13. 74 yds. at \$1.35 per yd.	14. 86 yds. at \$1.35 per yd.	7. 18,040
15. 11 yds. at \$1.35 per yd.	16. 106 lbs. at \$2.19 per lb.	8. 8,140
17. 60 lbs. at \$2.19 per lb.	18. 14 lbs. at \$2.19 per lb.	9. 7,040
19. 18 lbs. at \$2.19 per lb.	20. 32 lbs. at \$2.19 per lb.	10. 11,770
21. 164 pr. at \$6.85 pr.	22. 300 pr. at \$6.85 pr.	11. \$ 35.10
23. 64 pr. at \$6.85 pr.	24. 213 pr. at \$6.85 pr.	12. \$ 18.90
25. 110 pr. at \$6.85 pr.	26. 14 hrs. at \$1.15 an hr.	13. \$ 99.90
27. 20 hrs. at \$1.15 an hr.	28. 18 hrs. at \$1.15 an hr.	14. \$ 116.10
29. 13 hrs. at \$1.15 an hr.	30. 24 hrs. at \$1.15 an hr.	15. \$ 14.85
31. 20 doz. at \$.65 a doz.	32. 133 doz. at \$.65 a doz.	16. \$ 232.14
33. 75 doz. at \$.65 a doz.	34. 215 doz. at \$.65 a doz.	17. \$ 131.40
35. 72 doz. at \$.65 a doz.	36. 25 ft. at \$.12 per ft.	18. \$ 30.66
37. 164 ft. at \$.12 per ft.	38. 103 ft. at \$.12 per ft.	19. \$ 39.42
39. 18 ft. at \$.12 per ft.	40. 384 ft. at \$.12 per ft.	20. \$ 70.08
		21. \$1,123.40
		22. \$2,055.00
		23. \$ 438.40
		24. \$1,459.05
		25. \$ 753.50
		26. \$ 16.10
		27. \$ 23.00
		28. \$ 20.70
		29. \$ 14.95
		30. \$ 27.60
		31. \$ 13.00
		32. \$ 86.45
		33. \$ 48.75
		34. \$ 139.75
		35. \$ 46.80
		36. \$ 3.00
		37. \$ 19.68
		38. \$ 12.36
		39. \$ 2.16
		40. \$ 46.08

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Multi-Factor Multiplication

Answers

1. $3 \times 9 \times 7 \times 13$
2. $64 \times 12 \times 3 \times 6$
3. $69 \times 7 \times 2$
4. $13 \times 30 \times 114 \times 2$
5. $12 \times 20 \times 16 \times 7$
6. $10 \times 19 \times 36$
7. $15 \times 7 \times 803$
8. $83 \times 46 \times 327$
9. $413 \times 313 \times 6$
10. $83 \times 87 \times 53$
11. $.18 \times 2.10 \times 1.04$
12. $1.6 \times .55 \times .34$
13. $8.19 \times 16. \times .40$
14. $1.50 \times 3 \times 8$
15. $.19 \times 11 \times 11.1$
16. $3.36 \times 5 \times .90$
17. $65.4 \times 25 \times 9.21$
18. $9.85 \times 34 \times .61$
19. $18.2 \times 75 \times 46.50$
20. $3.61 \times 50 \times .37$

1. 2,457.
2. 13,824.
3. 966.
4. 88,920.
5. 276,480.
6. 6,840.
7. 84,315.
8. 1,248,486.
9. 775,614.
10. 382,713.
11. .39312
12. .2992
13. 52.416
14. 36.
15. 23.199
16. 15.12
17. 15,058.35
18. 204.289
19. 63,472.5
20. 66.785

175

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~~175~~

Accumulated Multiplication

$$\begin{array}{r} 1 \quad 15 \times 23 \\ 17 \times 18 \\ \hline 44 \times 68 \end{array}$$

$$\begin{array}{r} 2. \quad 301 \times 19 \\ 66 \times 2 \\ \hline 45 \times 38 \end{array}$$

$$\begin{array}{r} 3. \quad 30 \times 16 \\ 18 \times 96 \\ \hline 304 \times 28 \end{array}$$

$$\begin{array}{r} 4. \quad 218 \times 206 \\ 213 \times 14 \\ \hline 143 \times 67 \end{array}$$

$$\begin{array}{r} 5. \quad 14 \times 78 \\ 16 \times 31 \\ \hline 10 \times 188 \end{array}$$

$$\begin{array}{r} 6. \quad 34 \times 19 \\ 53 \times 234 \\ \hline 75 \times 10 \end{array}$$

Accumulative Multiplication with Decimals

Remember to work around fixed decimals on a rotary calculator.

$$\begin{array}{r} 7. \quad .95 \times 2.1 \\ 16.23 \times 2.14 \\ \hline .64 \times 3.44 \end{array}$$

$$\begin{array}{r} 8. \quad 2.14 \times 7.18 \\ 6.7 \times 2.67 \\ \hline 20.6 \times 3.41 \end{array}$$

$$\begin{array}{r} 9. \quad 6.77 \times 3.05 \\ .30 \times .15 \\ \hline 1.03 \times .05 \end{array}$$

$$\begin{array}{r} 10. \quad .64 \times 3.02 \\ 1.825 \times 2.6 \\ \hline 4.318 \times 4.2 \end{array}$$

$$\begin{array}{r} 11. \quad 2.50 \times 30 \\ 18.4 \times 10.7 \\ \hline 8.4 \times 29.04 \end{array}$$

$$\begin{array}{r} 12. \quad 85 \quad \times 4 \\ .34 \times 3.04 \\ \hline 16.14 \times 4 \end{array}$$

$$\begin{array}{r} 13. \quad 1.4 \times 16.54 \\ 9.7 \times 2.134 \\ \hline 5.74 \times 6.01 \end{array}$$

$$\begin{array}{r} 14. \quad 6.4 \times 3.04 \\ 12.3 \times 7.84 \\ \hline 6.8 \times 2.014 \end{array}$$

$$\begin{array}{r} 15. \quad 34.04 \times 78 \\ 1.03 \times 1.26 \\ \hline 63.4 \times 14 \end{array}$$

$$\begin{array}{r} 16. \quad 14.2 \times 15.7 \\ 2.3 \times 1.27 \\ 14.83 \times 4.02 \\ \hline 159.57 \times 13.78 \end{array}$$

$$\begin{array}{r} 17. \quad 22.0 \times 21.125 \\ 8.5 \times 5.365 \\ 241.64 \times .64 \\ \hline 2.34 \times 6.07 \end{array}$$

$$\begin{array}{r} 18. \quad 57.8 \times 42.03 \\ 2.846 \times 47.96 \\ 231.03 \times 2.314 \\ \hline 4.13 \times 2.623 \end{array}$$

$$\begin{array}{r} 19. \quad 15.9 \times .6 \\ 501.25 \times 4.73 \\ 14.76 \times .8 \\ \hline 10.765 \times 4.09 \end{array}$$

$$\begin{array}{r} 20. \quad .8 \times .63 \\ 2.2 \times 3.87 \\ 9.10 \times 6.20 \\ \hline 10.54 \times .34 \end{array}$$

$$\begin{array}{r} 21. \quad 231.3 \times .76 \\ 3.89 \times .333 \\ 20.67 \times 2.436 \\ \hline 125.5 \times .77 \end{array}$$

$$\begin{array}{r} 22 \quad 3.10 \times 18.4 \\ 16.84 \times 104.52 \\ 3.644 \times 6.4 \\ \hline .422 \times .18 \end{array}$$

$$\begin{array}{r} 23. \quad .1 \times .75 \\ 3.8 \times 2.66 \\ 30.9 \times .31 \\ \hline 4.7 \times .25 \end{array}$$

$$\begin{array}{r} 24. \quad 4.75 \times 3.21 \\ 7.15 \times 4.5 \\ 48.3 \times .25 \\ \hline 9.9 \times 4.29 \end{array}$$

$$\begin{array}{r} 25. \quad 7.58 \times 3.21 \\ \quad .95 \times .85 \\ 24.5 \times .15 \\ \hline 3.33 \times 4.05 \end{array}$$

$$\begin{array}{r} 27. \quad 4.95 \times .75 \\ \quad 6.105 \times .2 \\ 17.3 \times .25 \\ \hline .75 \times 8.25 \end{array}$$

$$\begin{array}{r} 26. \quad 7.35 \times 8.95 \\ \quad 8.5 \times 4.22 \\ 18.33 \times 10.5 \\ \hline 4.5 \times 4.5 \end{array}$$

Answers

1. 3,643
2. 7,561
3. 10,720
4. 57,471
5. 3,468
6. 13,798
7. 38.9288
8. 103.5002
9. 20.745
10. 24.8134
11. 515.816
12. 405.5936
13. 78.3532
14. 129.5832
15. 3,544.0178
16. 2,484.3522
17. 679.2059
18. 3,111.26457
19. 2,436.28935
20. 69.0216
21. 324.07049
22. 1,840.55436
23. 20.937
24. 101.9685
25. 42.3008
26. 314.3675
27. 15.446

COMPUTING PERCENTAGE

Answers

- | | |
|------------------------------------|--------------|
| 1. $5 \frac{1}{8}\%$ of \$684.24 = | 1. \$ 35.07 |
| 2. 10% of \$76 = | 2. \$ 7.60 |
| 3. 100% of \$666 = | 3. \$666.00 |
| 4. 25% of \$18.95 = | 4. \$ 4.74 |
| 5. 3.4% of \$635 = | 5. \$ 21.59 |
| 6. $2 \frac{1}{2}\%$ of \$321 = | 6. \$ 8.03 |
| 7. $10 \frac{3}{4}\%$ of \$55.75 = | 7. \$ 5.99 |
| 8. 150% of \$200 = | 8. \$300.00 |
| 9. 5% of \$76 = | 9. \$ 3.80 |
| 10. 21% of \$1500 = | 10. \$315.00 |
| 11. $6 \frac{1}{8}\%$ of \$340 = | 11. \$ 20.83 |
| 12. 22% of \$140 = | 12. \$ 30.80 |
| 13. .6% of \$25 = | 13. \$.15 |
| 14. $11 \frac{1}{3}\%$ of \$145 = | 14. \$ 16.43 |
| 15. 28% of \$800 = | 15. \$224.00 |
| 16. 5% of \$1,000 = | 16. \$ 50.00 |
| 17. 90% of \$500 = | 17. \$450.00 |
| 18. 22% of \$100 = | 18. \$ 22.00 |
| 19. $16 \frac{2}{3}\%$ of \$80 = | 19. \$ 13.33 |
| 20. $33 \frac{1}{3}\%$ of \$75 = | 20. \$ 25.00 |

COMPUTING NET AMOUNTS

Answers

- | | |
|---------------------------|----------------|
| 1. \$475 less 25% = | 1. \$ 356.25 |
| 2. \$790 less 15% = | 2. \$ 671.50 |
| 3. \$1,798 less 7% = | 3. \$1,672.14 |
| 4. \$840 less 35% = | 4. \$ 546.00 |
| 5. \$2,240 less 25% = | 5. \$1,680.00 |
| 6. \$546 less 6% = | 6. \$ 513.24 |
| 7. \$920 less 8% = | 7. \$ 846.40 |
| 8. \$1,115 less 46% = | 8. \$ 602.10 |
| 9. \$3,420 less 38% = | 9. \$2,120.40 |
| 10. \$237.35 less 15% = | 10. \$ 201.75 |
| 11. \$1,980.25 less 20% = | 11. \$1,584.20 |
| 12. \$2,340.95 less 35% = | 12. \$1,521.62 |
| 13. \$495 less 2 1/2% = | 13. \$ 482.62 |
| 14. \$1,820 less 3/4% = | 14. \$1,805.35 |
| 15. \$498 less 7 1/2% = | 15. \$ 460.65 |
| 16. \$375 less 3 3/4% = | 16. \$ 360.94 |
| 17. \$825 less 1 1/2% = | 17. \$ 812.63 |
| 18. \$799 less 2 3/4% = | 18. \$ 777.03 |
| 19. \$775 less 4 1/2% = | 19. \$ 740.13 |

NEGATIVE MULTIPLICATIONAnswers

- | | |
|--|---------------|
| 1. $(51 \times 6) - (15 \times 36) =$ | 1. 234 Cr. |
| 2. $(31 \times 64) - (10 \times 7) =$ | 2. 1914 |
| 3. $(2 \times 31) - (6 \times 8) =$ | 3. 14 |
| 4. $(34 \times 11) - (45 \times 61) =$ | 4. 2371 Cr. |
| 5. $(113 \times 9) - (13 \times 5) =$ | 5. 952 |
| 6. $(300 \times 15) - (20 \times 17) =$ | 6. 4,160 |
| 7. $(214 \times 5) - (201 \times 6) =$ | 7. 136 Cr. |
| 8. $(83 \times 17) - (31 \times 15) =$ | 8. 946 |
| 9. $(201 \times 84) - (6 \times 13) =$ | 9. 16,806 |
| 10. $(80 \times 2) - (11 \times 40) =$ | 10. 280 Cr. |
| 11. $(24 \times 6) - (11 \times 19) =$ | 11. 65 Cr. |
| 12. $(22 \times 36) - (37 \times 7) =$ | 12. 533 |
| 13. $(30 \times 6) - (36 \times 5) =$ | 13. 0 |
| 14. $(140 \times 10) - (154 \times 3) =$ | 14. 938 |
| 15. $(700 \times 55) - (177 \times 8) =$ | 15. 37,084 |
| 16. $(1005 \times 22) - (200 \times 60) =$ | 16. 10,110 |
| 17. $(72 \times 39) - (88 \times 44) =$ | 17. 1,064 Cr. |
| 18. $(99 \times 40) - (79 \times 11) =$ | 18. 3,091 |
| 19. $(409 \times 60) - (304 \times 25) =$ | 19. 16,940 |
| 20. $(66 \times 33) - (111 \times 33) =$ | 20. 1,485 Cr. |

MULTIPLYING FRACTIONS

1. $1/4 \times 6 \frac{1}{2} =$
2. $2 \frac{1}{8} \times 33 \frac{1}{4} =$
3. $8 \frac{3}{4} \times 7 \frac{1}{2} =$
4. $5 \frac{1}{5} \times 6 \frac{3}{4} =$
5. $33 \frac{7}{8} \times 20 \frac{5}{8} =$
6. $7 \frac{1}{12} \times 9 \frac{1}{6} =$
7. $33 \frac{1}{3} \times 66 \frac{2}{3} =$
8. $88 \frac{2}{3} \times 66 \frac{1}{5} =$
9. $10 \frac{5}{8} \times 5 \frac{1}{6} =$
10. $90 \frac{7}{8} \times 10 \frac{5}{6} =$
11. $14 \frac{1}{2} \times 16 \frac{1}{5} =$
12. $12 \frac{1}{4} \times 30 \frac{3}{5} =$
13. $1 \frac{1}{8} \times 4 \frac{2}{5} =$
14. $2 \frac{5}{8} \times 3 \frac{3}{4} =$
15. $66 \frac{2}{3} \times 8 \frac{3}{8} =$
16. $4 \frac{1}{2} \times 6 \frac{1}{4} =$
17. $19 \frac{1}{12} \times 26 \frac{1}{6} =$
18. $15 \frac{1}{5} \times 25 \frac{3}{4} =$
19. $60 \frac{7}{8} \times 33 \frac{2}{3} =$
20. $22 \frac{1}{6} \times 11 \frac{1}{12} =$
21. $119 \frac{1}{2} \times 30 \frac{7}{8} =$
22. $44 \frac{3}{4} \times 82 \frac{1}{3} =$
23. $97 \frac{5}{6} \times 50 \frac{3}{5} =$
24. $55 \frac{1}{4} \times 22 \frac{1}{2} =$

Answers

1. 1.625
2. 70.65625
3. 65.625
4. 35.1
5. 698.67188
6. 64.93055
7. 2,222.22211
8. 5,869.73355
9. 54.89587
10. 984.47886
11. 234.9
12. 374.85
13. 4.95
14. 9.84375
15. 558.33336
16. 28.125
17. 499.3472
18. 391.4
19. 2,049.45853
20. 245.68052
21. 3,689.5625
22. 3,684.41652
23. 4,950.3665
24. 1,243.125

PERCENTAGE OF INCREASE OF DECREASE

<u>MONTH</u>	<u>LAST YEAR</u>	<u>THIS YEAR</u>	<u>AMOUNT OF INCREASE OR DECREASE</u>	<u>PERCENTAGE + OR -</u>
January	\$ 9,810	\$12,310	\$2,500 +	25.48% +
Febraury	16,310	15,437	873 -	5.35% -
March	11,266	10,308	958 -	8.50% -
April	20,620	12	4,308 -	20.89% -
May	23,306	22,721	585 -	2.51%-
June	19,207	16,375	2,832 -	14.74% -
July	19,111	2,470	3,359 +	17.57% +
August	18,025	19,207	1,182 +	6.55% +
September	16,312	21,918	5,606 +	34.36% +
October	14,704	18,109	3,405 +	23.15% +
November	20,304	25,231	4,927 +	24.26% +
December	52,972	33,741	19,231 -	36.3%-

DivisionAnswers

1. $1884 \div 36$

2. $1400 \div 101$

1. 52.33333

2. 13.86138

Remember to carry all division problems to five decimal places.

3. 26.58823

4. 1.13732

3. $452 \div 17$

4. $1027 \div 903$

5. 32.97979

6. 29.27777

5. $3265 \div 99$

6. $527 \div 18$

7. 115.0851

8. 150.30434

7. $5409 \div 47$

8. $3457 \div 23$

9. 232.29166

10. 26.98841

9. $5575 \div 24$

10. $16,301 \div 604$

11. 5.25715

12. 82.5238

11. $18,542 \div 3527$

12. $1733 \div 21$

13. 97.28865

14. 1.85313

13. $9243 \div 97$

14. $5678 \div 3064$

15. 328.46551

16. 702.33333

15. $19,051 \div 58$

16. $6321 \div 9$

17. 199.54166

18. 180.31014

17. $4789 \div 24$

18. $62,207 \div 345$

19. 156.80952

20. 24.68368

19. $6586 \div 42$

20. $17,402 \div 705$

21. 5.08462

22. 88.875

21. $17,425 \div 3427$

22. $2844 \div 32$

23. 46.91878

24. 2.2078

23. $9243 \div 197$

24. $6789 \div 3075$

25. 205.89411

26. 391.15789

25. $17,501 \div 85$

26. $7432 \div 19$

27. 114.0238

28. 160.78508

27. $4789 \div 42$

28. $73,318 \div 456$

DIVISION WITH DECIMALSAnswers

Remember to subtract the number of decimals in divisor from number of decimals in dividend to arrive at number of decimals in quotient.

- | | |
|----------------------------|----------------|
| 1. $6,340 \div 34.21 =$ | 1. 185.32592 |
| 2. $602.14 \div 3.04 =$ | 2. 198.07236 |
| 3. $364.10 \div .5 =$ | 3. 728.2 |
| 4. $3,621.18 \div 27.84 =$ | 4. 130.07112 |
| 5. $607.84 \div 302.6 =$ | 5. 2.00872 |
| 6. $2,306.5 \div 18.4 =$ | 6. 125.35326 |
| 7. $1.256 \div .05 =$ | 7. 25.12 |
| 8. $3.64 \div 26 =$ | 8. .14 |
| 9. $863 \div .144 =$ | 9. 5,993.05555 |
| 10. $210 \div 24.64 =$ | 10. 8.52272 |
| 11. $8073 \div 64 =$ | 11. 126.14062 |
| 12. $31.04 \div 7.14 =$ | 12. 4.34733 |
| | 13. .09383 |
| | 14. .00027 |
| | 15. .00346 |
| | 16. .64292 |
| | 17. .10961 |
| | 18. .68739 |
| | 19. 3.35184 |
| | 20. .6031 |
| | 21. .04983 |
| | 22. .10824 |
| | 23. .00203 |
| | 24. .09803 |
| | 25. .67213 |
| | 26. .00163 |

If the divisor is larger than the dividend, add as many zeros to the dividend as there are numbers (whole or decimals) in the divisor.

- | | |
|-------------------------|--------------------------|
| 13. $28 \div 298.41 =$ | 22. $155 \div 1,432 =$ |
| 14. $11 \div 40,740 =$ | 23. $12.44 \div 6,121 =$ |
| 15. $200 \div 57,640 =$ | 24. $10 \div 102 =$ |
| 16. $13 \div 20.22 =$ | 25. $41 \div 61 =$ |
| 17. $84 \div 766.3 =$ | 26. $82 \div 50,134 =$ |
| 18. $21 \div 30.55 =$ | |
| 19. $35 \div 10.442 =$ | |
| 20. $104 \div 172.44 =$ | |
| 21. $15 \div 301$ | |

ELECTRONIC CALCULATOR

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THE ELECTRONIC CALCULATOR

The electronic calculator has modernized the office.

There are many makes and models of electronic calculators.

There are also many sizes and styles--some of them are small enough to be carried in your shirt pocket.

Because of its many advantages, the electronic calculator is one of the most popular office machines today.

1. It is noiseless.
2. It is fast.
3. It is moderately priced.
4. It has no moving parts to jam.
5. It is small, compact, and can be moved easily.

The objective is for you to work 95 problems correctly out of 100 in 40 minutes.

The problems will consist of:

1. Addition of whole numbers.
2. Subtraction of whole numbers.
3. Multiplication of whole numbers.
4. Division of whole numbers.
5. Addition of decimals.
6. Subtraction of decimals.
7. Multiplication of decimals.
8. Division of decimals.
9. Multi-factor multiplication.
10. Accumulated multiplication with individual extensions and automatic totals.
11. Negative multiplication.
12. Multiplication of constants.
13. Computation of interests.
14. Calculating discounts and net amounts.
15. Calculating percentages of markup based on cost and selling price.
16. Calculating the markup based on cost and selling price.
17. Calculating the carrying charge and monthly payments.

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If you have experience with an electronic calculator, perhaps you would like to take the pretest on the following pages to see if you need further instruction on the electronic calculator.

Time yourself for 40 minutes. Work quickly. If you finish in less than 40 minutes, use the remaining time to check your work. Use the following instructions to work the problems on the pretest, the problems in the workbook, the problems on the sample post test, and the problems on the post test.

1. Round cents off to two decimal places.
2. Round percentages off to two decimal places.
3. Round all products off to five decimal places.
4. Round all quotients off to five decimal places.
5. Punctuate all answers with commas and decimal points.
6. Indicate special notations in your answers; for example, Cr., %.

IMPORTANT NOTE: Do not spend more than 40 minutes on the pretest. If you cannot work the problems, go through the package.

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PRETEST FOR THE ELECTRONIC CALCULATOR

$$\begin{array}{r} (1) \quad 74 \\ \quad 69 \\ \quad 32 \\ \quad 16 \\ \quad \underline{22} \end{array}$$

$$\begin{array}{r} (2) \quad .4169 \\ \quad 3.21 \\ \quad \quad .104 \\ \quad 32.1096 \\ \quad \underline{34.62} \end{array}$$

$$\begin{array}{r} (3) \quad 56,920 \\ \quad \underline{-49,621} \end{array}$$

$$\begin{array}{r} (4) \quad 18,923 \\ \quad \underline{-22,401} \end{array}$$

$$\begin{array}{r} (5) \quad 19.42 \\ \quad - 1.067 \\ \quad \quad 3.2106 \\ \quad -14.16 \\ \quad \underline{\quad 4.2} \end{array}$$

$$(6) \quad 19 \times 45 =$$

$$(7) \quad 7.23 \times 18.9 =$$

$$(8) \quad 17 \times 14 \times 3 \times 7 =$$

$$(9) \quad 17.4 \times 46.3 \times 19.2 =$$

$$(10) \quad 49.7 \times 6.19 \times 14.3 =$$

$$(11) \quad (92 \times 16) - (14 \times 22) =$$

$$(12) \quad (24 \times 31) - (17 \times 102) =$$

$$(13) \quad (49 \times 14) - (44 \times 29) =$$

$$(14) \quad 201 \text{ doz. at } \$1.19 =$$

$$(15) \quad 49 \text{ doz. at } \$1.19 =$$

$$(16) \quad 17 \text{ doz. at } \$1.19 =$$

$$(17) \quad 42 \text{ doz. at } \$1.19 =$$

$$(18) \quad 433 \text{ doz. at } \$1.19 =$$

$$(19) \quad 136 \text{ doz. at } \$1.19 =$$

$$(20) \quad 58 \text{ doz. at } \$1.19 =$$

$$(21) 17 \div 4 =$$

$$(22) 95.6 \div 14 =$$

$$(23) 402 \div 1.02 =$$

$$(24) 13,709 \div 42 =$$

$$(25) 748 \div 19 =$$

$$(26) 197 \div 413 =$$

$$(27) 408 \div 2.36 =$$

$$(28) 1,055 \div 2.725 =$$

$$(29) 14,701 \div 19.25 =$$

$$(30) 73,201 \div 66 =$$

INTEREST CALCULATION

	<u>Amount of Principle</u>	<u>Interest Rate</u>	<u>Period of Time</u>	<u>Amount to be Repaid</u>
31.	572	4 1/2%	51 days	
32.	402	5%	60 days	
33.	2,000	5 1/2%	66 days	
34.	4,719	6%	90 days	
35.	14,000	4%	75 days	
36.	8,975	4 1/2%	20 days	
37.	3,000	5%	180 days	
38.	9,000	4 3/4%	60 days	
39.	10,624	7%	45 days	
40.	13,905	7 1/4%	100 days	

	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>EXTENSION</u>
41.	16	4.19	
42.	75	3.22	
43.	14	1.95	
44.	45	3.21	
45.	17	3.07	
46.	29	4.05	
47.	4	.19	
48.	18	7.05	
49.	12	4.65	
50.	31	.75	
51.		TOTAL	_____
52.		3% Sales Tax	_____
53.		Amount Due	_____

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DISCOUNTS AND NET AMOUNTS

	<u>Amount</u>	<u>Discount Rate</u>	<u>Amount of Discount</u>	<u>Net Amount</u>
54/55	295.00	5%		
56/57	320.00	4 1/2%		
58/59	425.20	10%		
60/61	1,460.00	5 3/4%		
62/63	95.00	6%		
64/65	198.50	7 1/4%		
66/67	619.22	12%		
68/69	79.55	2%		
70/71	245.29	4 1/2%		
72/73	550.00	14%		

CALCULATING THE PERCENT OF MARKUP BASED ON COST

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>
74.	15.00	20.00	
75.	4.95	5.20	
76.	165.19	199.95	
77.	196.20	215.00	
78.	250.00	300.00	

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CALCULATING THE PERCENT OF MARKUP BASED ON SELLING PRICE

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>
79.	\$ 29.00	\$ 35.00	
80.	45.00	49.95	
81.	122.00	129.95	
82.	175.00	200.00	
83.	217.32	314.06	

CALCULATING THE SELLING PRICE WITH MARKUP BASED ON COST

	<u>Cost</u>	<u>Markup</u>	<u>Selling Price</u>
84.	\$ 25.00	20%	
85.	17.95	18%	
86.	232.75	25%	
87.	227.82	40%	
88.	39.85	12%	

	<u>Cash Price</u>	<u>Installment Price</u>	<u>Carrying Charge</u>	<u>Down Payment</u>	<u>Months</u>	<u>Monthly Payment</u>
89/90	\$500.00	\$550.00		\$50.00	10	
91/92	995.00	1200.00		30.00	9	
93/94	1200.00	1422.00		150.00	8	
95/96	795.00	900.00		75.00	10	
97/98	500.00	800.00		200.00	6	
99/100	1000.00	1500.00		360.00	12	

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ANSWERS TO PRETEST FOR ELECTRONIC CALCULATOR

1. 213	29. 763.68831	57. 305.60	85. 21.18
2. 70.4605	30. 1,109.10606	58. 42.52	86. 290.94
3. 7,299	31. \$575.60	59. 382.68	87. 318.95
4. 3,478 Cr.	32. 405.30	60. 83.95	88. 44.63
5. 11.6036	33. 2,019.89	61. 1,376.05	89. \$50.00
6. 855	34. 4,788.82	62. 5.70	90. 50.00
7. 136.647	35. 14,115.07	63. 89.30	91. 205.00
8. 4,998	36. 8,997.13	64. 14.39	92. 130.00
9. 15,467.904	37. 3,073.97	65. 184.11	93. 222.00
10. 4,399.2949	38. 9,070.27	66. 74.31	94. 159.00
11. 1,164	39. 10,715.69	67. 544.91	95. 105.00
12. 990 Cr.	40. 14,181.20	68. 1.59	96. 82.50
13. 590 Cr.	41. 67.04	69. 77.96	97. 300.00
14. \$239.19	42. 241.50	70. 11.04	98. 100.00
15. 58.31	43. 27.30	71. 234.25	99. 500.00
16. 20.23	44. 144.45	72. 77.00	100. 95.00
17. 49.98	45. 52.19	73. 473.00	
18. 515.27	46. 117.45	74. 33.33%	
19. 161.84	47. .76	75. 5.05%	
20. 69.02	48. 126.90	76. 21.04%	
21. 4.25	49. 55.80	77. 9.58%	
22. 6.82857	50. 23.25	78. 20%	
23. 394.11765	51. 856.64	79. 17.14%	
24. 326.40476	52. 25.70	80. 9.91%	
25. 39.36842	53. 882.34	81. 6.12%	
26. .477	54. \$14.75	82. 12.5%	
27. 172.88136	55. 280.25	83. 30.8%	
28. 387.15596	56. 14.40	84. 30.00	

If the pretest indicates that the stated objective has been met,
ask me for the post test.

If the pretest indicates that further study and practice would be
helpful, select one of the electronic calculators in your classroom and
have it in front of you as you view Film No. 11 and listen to Tape No. 11.

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This machine should be operated by touch. The middle row is the home row. The first finger controls the 7, 4, and 1; the middle finger controls the 8, 5, and 2; and the ring finger controls the 9, 6, and 3.

The operational keys on the left are operated by the first finger and the operational keys on the right by the little finger.

1. Turn the machine on by switching on the rocker switch at the front side underneath the machine.
2. Clear the machine by depressing the red "C" key.
3. To add, enter the addends as they read, from left to right.

22 tap +

24 tap ±
=

16 tap +

32 tap ±

94 read the total in the display register. Notice that a sub-total is available after each operation.

ADDITION:

1. 44	2. 45	3. 12	4. 78	5. 47	6. 24
22	56	21	87	65	35
33	66	31	77	32	79
55	44	32	88	21	84
33	54	13	98	89	34
44	64	23	89	76	27
22	46	33	97	88	41
<u>44</u>	<u>55</u>	<u>22</u>	<u>79</u>	<u>34</u>	<u>87</u>

7.	19	8.	45	9.	505	10.	990	11.	291	12.	799
	24		32		404		875		380		987
	76		98		504		333		671		741
	44		78		405		782		932		825
	32		67		302		901		401		369
	25		43		200		324		67		699
	87		22		604		964		487		852
	<u>96</u>		<u>85</u>		<u>400</u>		<u>342</u>		<u>204</u>		<u>456</u>

13.	789	14.	421	15.	780
	963		604		620
	258		321		304
	987		198		708
	321		720		300
	471		401		405
	989		322		706
	<u>340</u>		<u>780</u>		<u>600</u>

ANSWERS:

1.	297	2.	430	3.	187	4.	693	5.	452
6.	411	7.	403	8.	470	9.	3,324	10.	5,511
11.	4,060	12.	5,728	13.	5,118	14.	3,767	15.	4,423

To set a decimal in the register window, depress the red "C" and the number on the keyboard which represents the number of decimal places desired simultaneously.

For example, to set two decimal places, depress the red "C" and the 2 on the keyboard simultaneously.

The decimal must be entered in the proper order.

24.95
13.16
42.20
80.31

1. Clear the machine.
2. Depress 24 and a decimal (the key with a dot on it next to the zero key) and 95. Tap \pm .
3. Follow the same steps for the next two addends.
4. Read the answer in the register window (80.31).

$$\begin{array}{r}
 16. \quad 251.60 \\
 \quad 39.05 \\
 \hline
 \quad 201.55 \\
 \quad \quad \quad \text{S} \\
 \quad 2.31 \\
 \quad 19.58 \\
 \hline
 \quad 237.59 \\
 \quad \quad \quad \text{T}
 \end{array}$$

$$\begin{array}{r}
 17. \quad 591.06 \\
 \quad 61.37 \\
 \hline
 \quad 206.15 \\
 \quad \quad \quad \text{S} \\
 \quad 3.21 \\
 \quad 92.57 \\
 \hline
 \quad 19.85 \\
 \quad \quad \quad \text{T}
 \end{array}$$

$$\begin{array}{r}
 18. \quad 72.89 \\
 \quad 41.57 \\
 \hline
 \quad 32.20 \\
 \quad \quad \quad \text{S} \\
 \quad -25.80 \\
 \quad 3.21 \\
 \hline
 \quad 10.99 \\
 \quad \quad \quad \text{T}
 \end{array}$$

$$\begin{array}{r}
 19. \quad 9.12 \\
 \quad 14.59 \\
 \hline
 \quad 12.98 \\
 \quad \quad \quad \text{S} \\
 \quad -8.48 \\
 \quad -22.64 \\
 \hline
 \quad 1.77 \\
 \quad \quad \quad \text{T}
 \end{array}$$

$$\begin{array}{r}
 20. \quad 42.23 \\
 \quad 71.59 \\
 \hline
 \quad 14.26 \\
 \quad \quad \quad \text{S} \\
 \quad -4.20 \\
 \quad 12.30 \\
 \hline
 \quad 1.04 \\
 \quad \quad \quad \text{T}
 \end{array}$$

$$\begin{array}{r}
 21. \quad 8.94 \\
 \quad 13.42 \\
 \hline
 \quad 4.74 \\
 \quad \quad \quad \text{S} \\
 \quad 30.31 \\
 \quad -68.77 \\
 \hline
 \quad 4.53 \\
 \quad \quad \quad \text{T}
 \end{array}$$

ANSWERS

16. 492.20 ST
751.68 T

17. 858.58 ST
974.21 T

18. 146.66 ST
135.06 T

19. 36.69 ST
7.34 T

20. 128.08 ST
137.22 T

21. 27.10 ST
6.83 T CR

SUBTRACTION:

To subtract, depress the $\underline{=}$ for the subtrahend.

$$\begin{array}{r} 14.95 \\ -2.16 \\ \hline 12.79 \end{array}$$

1. Clear the machine.
2. Enter the minuend 14.95 with the $\underline{+}$
3. Enter the subtrahend 2.16 with the $\underline{=}$
4. Read the difference 12.79 in the register window

1. 33.45	2. 21.59	3. 5.12	4. 54.89	5. 891.52
<u>-7.95</u>	<u>-9.87</u>	<u>-3.71</u>	<u>-12.91</u>	<u>-520.98</u>

Notice that a minus sign appears in the register window when the answer is a credit balance.

Be sure to indicate a credit balance with a minus sign, a Cr. or a C. when you record your answer.

6. 200.78	7. 352.89	8. 635.28	9. 489.07	10. 2.79
<u>-420.24</u>	<u>-549.24</u>	<u>-629.89</u>	<u>-520.24</u>	13.87
				-35.15
				3.18
				-20.25
				<u>10.91</u>

11. 3.17	12. 401.35	13. 185.04	14. 41.78	15. -30.24
9.28	58.36	-70.33	-15.19	-3.20
-35.15	-201.05	<u>23.15</u>	<u>3.03</u>	<u>10.17</u>
3.18	13.14			
-20.25	-2.06			
<u>10.91</u>	<u>8.95</u>			

ANSWERS:

- | | | | | |
|---------------|---------------|------------|--------------|---------------|
| 1. 25.50 | 2. 11.72 | 3. 1.41 | 4. 41.98 | 5. 370.54 |
| 6. 219.46 cr. | 7. 196.35 cr. | 8. 5.39 | 9. 31.17 cr. | 10. 24.65 cr. |
| 11. 28.86 cr. | 12. 278.69 | 13. 137.86 | 14. 29.62 | 15. 23.27 cr. |

16. 6,701 <u>-519</u>	17. 3,478 <u>-1,033</u>	18. 4,711 <u>-2,736</u>	19. 374,029 <u>-25,000</u>	20. 4,100,462 <u>-2,400,400</u>
21. 51,763 <u>-19,742</u>	22. 17,299 <u>- 322</u>	23. 701 <u>-799</u>	24. 4,623 <u>-5,000</u>	25. 5,921 <u>-6,735</u>
26. 8,932 <u>-10,725</u>	27. 7,466 <u>-8,220</u>	28. 21,325 <u>-25,384</u>	29. 44,648 <u>-45,205</u>	30. 17.21 <u>-18.50</u>

ANSWERS:

16. 6,182	17. 2,445	18. 1975	19. 349,029	20. 1,700,062
21. 32,021	22. 16,977	23. 98 Cr.	24. 377 Cr.	25. 814 Cr.
26. 1,793 Cr.	27. 754 Cr.	28. 4,059 Cr.	29. 557 Cr.	30. 1.29 Cr.

To multiply $44 \times 32 = 1408$

1. Clear the machine
2. Depress 44 into the keyboard
3. Tap the x key
4. Depress 32 into the keyboard
5. Depress the \pm key
6. Read the product 1408 in the register dial

MULTIPLICATION:

- | | |
|---------------|----------------|
| (1) 306 x 214 | (2) 280 x 314 |
| (3) 306 x 78 | (4) 378 x 514 |
| (5) 384 x 8 | (6) 24 x 11 |
| (7) 49 x 275 | (8) 611 x 304 |
| (9) 116 x 214 | (10) 207 x 304 |

Be sure to punctuate answers.

(11) 75×201

(13) 264×504

(15) 3010×780

(17) 213×780

(19) 684×814

(21) 13×19

(23) 210×784

(25) 383×215

(12) 204×703

(14) 1607×104

(16) 7088×614

(18) 604×247

(20) 783×204

(22) 707×304

(24) 305×187

(26) 200×500

ANSWERS

(1) 65,484

(2) 87,920

(3) 23,868

(4) 194,292

(5) 3,072

(6) 264

(7) 13,475

(8) 185,744

(9) 24,824

(10) 62,928

(11) 15,075

(12) 143,412

(13) 133,056

(14) 167,128

(15) 2,347,800

(16) 4,352,032

(17) 166,140

(18) 149,188

(19) 556,776

(20) 159,732

(21) 247

(22) 214,928

(23) 164,640

(24) 57,035

(25) 82,345

(26) 100,000

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202

5

MULTIPLICATION OF DECIMALS

To multiply decimals

$$6.3 \times 2.34 = 14.742$$

1. Enter five decimal places into the register window by depressing the red "C" key and the 5 simultaneously.
2. Depress the six, the decimal, and the three into the keyboard.
3. Depress the x key.
4. Depress the 2, the decimal, the three, and the four into the keyboard.
5. Depress the \pm key.
6. Read the product, 14.742, in the register window.
7. It is not necessary to clear the window register before working the next problem.

1. 6.4×2.3
2. 2.8×6.7

Remember, the sum of the decimals in the multiplier and multiplicand equals the number of decimal places in the product.

- | | | |
|-------------------------|--------------------------|----------------|
| 3. $3.4 \times 7.04 =$ | 4. $20.5 \times 2.175 =$ | <u>ANSWERS</u> |
| 5. $3.81 \times 2.76 =$ | 6. $5.06 \times 5.04 =$ | 1. 14.72 |
| 7. $61.3 \times 2.83 =$ | 8. $10.75 \times 4.35 =$ | 2. 18.76 |
| 9. $2.04 \times 7.13 =$ | 10. $3.88 \times 9.36 =$ | 3. 23.936 |
| 11. $3.4 \times 6.3 =$ | 12. $11.18 \times 25 =$ | 4. 44.5875 |
| 13. $1.64 \times 6.5 =$ | 14. $.483 \times 96 =$ | 5. 10.5156 |
| | | 6. 25.5024 |
| | | 7. 173.479 |
| | | 8. 46.7625 |

- | | | |
|--------------------------|--------------------------|-------------|
| 15. $7.5 \times 18 =$ | 16. $7.95 \times 2.45 =$ | 9. 14.5452 |
| 17. $12.6 \times .88 =$ | 18. $21.6 \times 2.88 =$ | 10. 36.3168 |
| 19. $2,821 \times 3.6 =$ | 20. $18.6 \times 95 =$ | 11. 21.42 |
| 21. $3.04 \times 26 =$ | | 12. 279.50 |
| | | 13. 10.660 |
| | | 14. 46.368 |
| | | 15. 135.0 |
| | | 16. 19.4775 |
| | | 17. 11.088 |
| | | 18. 62.208 |
| | | 19. 10155.6 |
| | | 20. 1767.0 |
| | | 21. 79.04 |

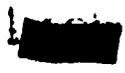
MULTIPLYING CONSTANTS

With "K" key locked, the second factor (multiplier, or divisor) and its arithmetic function are retained as a constant.

In the problems - 19×24
 19×41
 19×32

1. Depress the "K" key into a locked position.
2. Enter the 24 into the keyboard.
3. Depress the x key.
4. Next, enter the 19 in the keyboard because the second factor entered is retained as a constant.
5. Depress the \pm key.
6. Read the product (456) in the register window.
7. Enter 41 into the keyboard.
8. Depress the \pm .
9. Read the product (779) in the register window.
10. Repeat from No. 7 as many times as necessary

- | | | |
|--|-------------------------------|----------------|
| 1. $364 \times 25 =$ | 6. $13 \times 110 =$ | <u>ANSWERS</u> |
| 2. $364 \times 201 =$ | 7. $164 \times 110 =$ | |
| 3. $364 \times 681 =$ | 8. $74 \times 110 =$ | |
| 4. $364 \times 108 =$ | 9. $64 \times 110 =$ | |
| 5. $364 \times 11 =$ | 10. $107 \times 110 =$ | |
| 11. 26 yds. @ \$1.35 per yd. | 16. 106 lbs. @ \$2.19 per lb. | |
| 12. 14 yds. @ \$1.35 per yd. | 17. 60 lbs. @ \$2.19 per lb. | |
| 13. 74 yds. @ \$1.35 per yd. | 18. 14 lbs. @ \$2.19 per lb. | |
| 14. 86 yds. @ \$1.35 per yd. | 19. 18 lbs. @ \$2.19 per lb. | |
| 15. 11 yds. @ \$1.35 per yd. | 20. 32 lbs. @ \$2.19 per lb. | |
| NOTE: REMEMBER TO ENTER THE DECIMAL INTO THE KEYBOARD. | | |
| 21. 164 pr at \$6.85 pr. | 26. 14 hrs at \$1.15 an hr. | 1. 9,100 |
| 22. 300 pr at \$6.85 pr. | 27. 20 hrs at \$1.15 an hr. | 2. 73,164 |
| 23. 64 pr at \$6.85 pr. | 28. 18 hrs at \$1.15 an hr. | 3. 247,884 |
| 24. 213 pr at \$6.85 pr. | 29. 13 hrs at \$1.15 an hr. | 4. 39,312 |
| 25. 110 pr at \$6.85 pr. | 30. 24 hrs at \$1.15 an hr. | 5. 4,004 |
| 31. 20 doz. at \$.65 doz. | 36. 25 ft. at \$.12 per ft. | 6. 1,430 |
| 32. 133 doz. at \$.65 doz. | 37. 164 ft. at \$.12 per ft. | 7. 18,040 |
| 33. 75 doz. at \$.65 doz. | 38. 103 ft. at \$.12 per ft. | 8. 8,140 |
| 34. 215 doz. at \$.65 doz. | 39. 18 ft. at \$.12 per ft. | 9. 7,040 |
| 35. 72 doz. at \$.65 doz. | 40. 384 ft. at \$.12 per ft. | 10. 11,770 |
| | | 11. \$35.10 |
| | | 12. \$18.90 |
| | | 13. \$99.90 |
| | | 14. \$116.10 |
| | | 15. \$14.85 |
| | | 16. \$232.14 |
| | | 17. \$131.40 |
| | | 18. \$30.66 |
| | | 19. \$39.42 |
| | | 20. \$70.08 |
| | | 21. \$1,123.40 |
| | | 22. \$2,055.00 |
| | | 23. \$438.40 |
| | | 24. \$1,459.05 |
| | | 25. \$753.50 |
| | | 26. \$16.10 |
| | | 27. \$23.00 |
| | | 28. \$20.70 |
| | | 29. \$14.95 |
| | | 30. \$27.60 |
| | | 31. \$13.00 |
| | | 32. \$86.45 |
| | | 33. \$48.75 |
| | | 34. \$139.75 |
| | | 35. \$46.80 |
| | | 36. \$3.00 |
| | | 37. \$19.68 |
| | | 38. \$12.36 |
| | | 39. \$2.16 |
| | | 40. \$46.08 |



MULTI-FACTOR MULTIPLICATION

To multiply several factors as in the problem

$$4 \times 8 \times 2 \times 3 = 192$$

1. Enter the 4 into the keyboard.
2. Depress the x key.
3. Enter the 8 into the keyboard.
4. Depress the \pm key.
5. Depress the x key.
6. Enter the 2 into the keyboard.
7. Depress the \pm key.
8. Depress the x key.
9. Enter the 3 into the keyboard.
10. Depress the \pm key.
11. Read the product, 192, in the register window.

- | | |
|---|---|
| 1. $3 \times 9 \times 7 \times 13 =$ | 2. $64 \times 12 \times 3 \times 6 =$ |
| 3. $69 \times 7 \times 2 =$ | 4. $13 \times 30 \times 114 \times 2 =$ |
| 5. $12 \times 20 \times 16 \times 72 =$ | 6. $10 \times 19 \times 36 =$ |
| 7. $15 \times 7 \times 803 =$ | 8. $83 \times 46 \times 327 =$ |
| 9. $413 \times 313 \times 6 =$ | 10. $83 \times 87 \times 53 =$ |
| 11. $.18 \times 2.10 \times 1.04 =$ | 12. $1.6 \times .55 \times .34 =$ |
| 13. $8.19 \times 16 \times .40 =$ | 14. $1.50 \times 3 \times 8 =$ |
| 15. $.19 \times 11 \times 11.1 =$ | 16. $3.36 \times 5 \times .90 =$ |
| 17. $65.4 \times 25 \times 9.21 =$ | 18. $9.85 \times 34 \times .61 =$ |
| 19. $18.2 \times 75 \times 46.50 =$ | 20. $3.61 \times 50 \times .37 =$ |

ANSWERS

1. 2,457
2. 13,824
3. 966
4. 88,920
5. 276,480
6. 6,840
7. 84,315
8. 1,248,486
9. 775,614
10. 382,713
11. .39312
12. .2992
13. 52.416
14. 36.
15. 23.199
16. 15.12
17. 15,058.35
18. 204.289
19. 63,472.5
20. 66.785

NEGATIVE MULTIPLICATION

We will use the positive storage key \oplus , the negative storage key \ominus and the storage recall key \diamond to work these problems.

In the problem $(51 \times 6) - (15 \times 36) =$

1. Enter 51 into the keyboard.
2. Depress the \times key.
3. Enter 6 into the keyboard.
4. Depress the \oplus key to store the product in the positive memory.

Notice that the green light in the upper left-hand corner came on.

5. Enter 15 into the keyboard.
6. Depress the \times key.
7. Enter the 36 into the keyboard.
8. Depress the \ominus key to store the product in the negative memory.
9. Depress the \diamond key to recall the difference in the two products.
10. Read the answer in the register window. Note the minus sign at the left.
11. Clear the storage by depressing the \textcircled{C} key in the upper left-hand corner.
12. Note that the green light goes off when the storage is cleared.

-
- | | |
|---|-------------|
| 1. $(51 \times 6) - (15 \times 36) =$ | 1. 234 Cr. |
| 2. $(31 \times 64) - (10 \times 7) =$ | 2. 1914 |
| 3. $(2 \times 31) - (6 \times 8) =$ | 3. 14 |
| 4. $(34 \times 11) - (45 \times 61) =$ | 4. 2371 Cr. |
| 5. $(113 \times 9) - (13 \times 5) =$ | 5. 952 |
| 6. $(300 \times 15) - (20 \times 17) =$ | 6. 4,160 |
| 7. $(214 \times 5) - (201 \times 6) =$ | 7. 136 Cr. |
| 8. $(83 \times 17) - (31 \times 15) =$ | 8. 946 |

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- | | |
|--|---------------|
| 9. $(201 \times 84) - (6 \times 13) =$ | 9. 16,806 |
| 10. $(80 \times 2) - (11 \times 40) =$ | 10. 280 Cr. |
| 11. $(24 \times 6) - (11 \times 19) =$ | 11. 65 Cr. |
| 12. $(22 \times 36) - (37 \times 7) =$ | 12. 533 |
| 13. $(30 \times 6) - (36 \times 5) =$ | 13. 0 |
| 14. $(140 \times 10) - (154 \times 3) =$ | 14. 938 |
| 15. $(700 \times 55) - (177 \times 8) =$ | 15. 37,084 |
| 16. $(1005 \times 22) - (200 \times 60) =$ | 16. 10,110 |
| 17. $(72 \times 39) - (88 \times 44) =$ | 17. 1,064 Cr. |
| 18. $(99 \times 40) - (79 \times 11) =$ | 18. 3,091 |
| 19. $(409 \times 60) - (304 \times 25) =$ | 19. 16,940 |
| 20. $(66 \times 33) - (111 \times 33) =$ | 20. 1,485 Cr. |

DIVISION

Division is very simple to perform on the electronic calculator.

In the problem

$$462 \div 15 = 30.8$$

Since we want to round all quotients to five decimal places:

1. Depress the red "C" and the 5 simultaneously to set 5 decimal places in the register window.
2. Depress the 5/4 key which rounds up or off automatically all products and quotients.
3. Enter 462 into the keyboard.
4. Depress the : key.
5. Enter the 15 into the keyboard.
6. Depress the \pm key.
7. Read the quotient, 30.8, in the register window.

-
- | | |
|--------------------------|-------------------------|
| 1. $1884 \div 36 =$ | 2. $1400 \div 101 =$ |
| 3. $452 \div 17 =$ | 4. $1027 \div 903 =$ |
| 5. $3265 \div 99 =$ | 6. $527 \div 18 =$ |
| 7. $5409 \div 47 =$ | 8. $3457 \div 23 =$ |
| 9. $5575 \div 24 =$ | 10. $16,301 \div 604 =$ |
| 11. $18,542 \div 3527 =$ | 12. $1733 \div 21 =$ |
| 13. $9243 \div 97 =$ | 14. $5678 \div 3064 =$ |
| 15. $19,051 \div 58 =$ | 16. $6321 \div 9 =$ |
| 17. $4789 \div 24 =$ | 18. $62,207 \div 345 =$ |

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$19. 6586 \div 42 =$

$21. 17,425 \div 3427 =$

$23. 9243 \div 197 =$

$25. 17,501 \div 85 =$

$27. 4789 \div 42 =$

$20. 17,402 \div 705 =$

$22. 2844 \div 32 =$

$24. 6789 \div 3075 =$

$26. 7432 \div 19 =$

$28. 73,318 \div 456 =$

ANSWERS

$1. 52.33333$

$2. 13.86139$

$3. 26.58824$

$4. 1.13732$

$5. 32.9798$

$6. 29.27778$

$7. 115.0851$

$8. 150.3043$

$9. 232.29166$

$10. 26.98841$

$11. 5.25716$

$12. 82.5238$

$13. 95.28866$

$14. 1.85313$

$15. 328.46552$

$16. 702.33333$

$17. 199.54167$

$18. 180.31014$

$19. 156.80952$

$20. 24.68369$

$21. 5.08462$

$22. 88.875$

$23. 46.91878$

$24. 2.2078$

$25. 205.89412$

$26. 391.15789$

$27. 114.02381$

$28. 160.78509$

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DIVISION WITH DECIMALS

Remember to include the decimal in proper sequence when the number is entered into the keyboard.

For example in problem one, enter the 6, the 3, the 4, the 0, the decimal, the 6, and the 4 into the keyboard.

Depress the $:$ key.

Enter the 3, the 4, the decimal, the 2, and the 1 into the keyboard.

Depress the \pm key.

ANSWERS

- | | | |
|----------------------------|----------------------------|----------------|
| 1. $6,340.64 \div 34.21 =$ | 2. $602.14 \div 3.04 =$ | 1. 185.34467 |
| 3. $364.10 \div .5 =$ | 4. $3,621.18 \div 27.84 =$ | 2. 198.07237 |
| 5. $607.84 \div 302.0 =$ | 6. $2,306.5 \div 18.4 =$ | 3. 728.2 |
| 7. $1.256 \div .05 =$ | 8. $3.64 \div 26 =$ | 4. 130.07122 |
| 9. $863 \div .144 =$ | 10. $210 \div 24.64 =$ | 5. 2.00872 |
| 11. $8073 \div 64 =$ | 12. $31.04 \div 7.14 =$ | 6. 125.35326 |
| 13. $28 \div 298.41 =$ | 14. $11 \div 40,740 =$ | 7. 25.12 |
| 15. $200 \div 57,640 =$ | 16. $12 \div 20.22 =$ | 8. .14 |
| 17. $84 \div 766.3 =$ | 18. $21 \div 30.55 =$ | 9. 5,993.05556 |
| 19. $35 \div 10.442 =$ | 20. $104 \div 172.44 =$ | 10. 8.52273 |
| 21. $15 \div 301 =$ | 22. $155 \div 1,432 =$ | 11. 126.14063 |
| 23. $12.44 \div 6,121 =$ | 24. $10 \div 102 =$ | 12. 4.34734 |
| 25. $41 \div 61 =$ | 26. $82 \div 50,134 =$ | 13. .09383 |
| | | 14. .00027 |
| | | 15. .00347 |
| | | 16. .59347 |
| | | 17. .10962 |
| | | 18. .6874 |
| | | 19. 3.35185 |
| | | 20. .6031 |
| | | 21. .04983 |
| | | 22. .10824 |
| | | 23. .00203 |
| | | 24. .09804 |
| | | 25. .67213 |
| | | 26. .00164 |

DISCOUNTS AND NET AMOUNTS can be calculated in one step.

In the problem

\$292.00 less 5 1/4%

1. Set 2 decimal places and clear the machine.
2. Depress the 5/4 key to round off to 2 decimal places.
3. Enter 292 into the keyboard.
4. Depress \oplus to enter 292 into the positive memory.
5. Depress the x key.
6. Depress 5.25 into the keyboard.
7. Depress the % key.*
8. Depress \ominus to enter the discount into the negative memory.
9. Write down the amount of the discount, 15.33.
10. Depress ◀ to recall the amount less the discount, 276.67, as shown in the register window.

*If you do not use the % key, you will have to set 4 decimal places instead of 2 and enter 5 1/2% as .0525 instead of 5.25%.

Work the following problems.

DISCOUNTS AND NET AMOUNTS

	<u>Amount</u>	<u>Discount Rate</u>	<u>Amount of Discount</u>	<u>Net Amount</u>	<u>Amount of Discount</u>	<u>Net Amount</u>
1/2	\$495.00	3 3/4%			\$18.56	\$476.44
3/4	540.00	2 1/2%			13.50	526.50
5/6	129.48	4 1/4%			5.50	123.98
7/8	91.35	7 1/2%			6.85	84.50
9/10	54.50	6%			3.27	51.23
11/12	291.35	8 1/2%			24.76	266.59
13/14	33.00	3%			.99	32.01
15/16	899.22	2%			17.98	881.24
17/18	32.64	10%			3.26	29.38
19/20	54.30	8%			4.34	49.96
21/22	280.00	7%			19.60	260.40
23/24	761.56	3%			22.85	738.71
25/26	45.00	4%			1.80	43.20
27/28	3.99	10%			.40	3.59
29/30	43.87	6%			2.63	41.24
31/32	295.85	5 1/2%			16.27	279.58
33/34	891.53	3 1/4%			28.97	862.56
35/36	129.76	5 1/4%			6.81	122.95
37/38	525.35	7 1/2%			39.40	485.95
39/40	48.98	2%			.98	48.00

TO CALCULATE INTEREST, use the formula --

Principle x rate x time = interest

Principle + interest = Amount to be repaid

This can be done in one operation on the electronic calculator.

In the following problem:

Principle = \$550

Rate of interest = 5 1/2%

Time = 60 days

$$550 \times 5 \frac{1}{2}\% \times \frac{60}{365} = I$$

1. Set two decimal places and clear the machine.
2. Depress the 5/4 key to round off to 2 decimal places.
3. Enter 550 into the keyboard.
4. Depress \oplus to enter 550 into the memory.
5. Depress the x key.
6. Depress 5.5 into the keyboard.
7. Depress the % key.*
8. Depress \pm key.
9. Depress x key.
10. Depress 60 into the keyboard.
11. Depress \pm key.
12. Depress : key.
13. Enter 365 into the keyboard.
14. Depress \oplus key to enter the amount of interest into the memory.
15. Depress the \odot key to recall the principle plus the interest.
16. Read the answer 554.97 in the window register.

*If you do not use the % key, you will have to set 4 decimal places instead of 2 and enter 5 1/2% as .055 instead of 5.5%.

REMEMBER TO CLEAR THE MACHINE BEFORE WORKING THE NEXT PROBLEM.

Work the following problems.

	<u>Amount of Principle</u>	<u>Interest Rate</u>	<u>Period of Time</u>	<u>To be Repaid</u>	<u>ANSWERS</u>
1.	\$495.75	4 3/4%	90 days		\$501.56
2.	795.35	6%	45 days		801.23
3.	85.00	9%	30 days		85.63
4.	432.50	2 1/2%	60 days		434.28
5.	450.75	3%	20 days		451.49
6.	300.00	7%	15 days		300.86
7.	238.98	6 1/4%	10 days		239.39
8.	45.00	8%	10 days		45.10
9.	999.10	10%	15 days		1,003.21
10.	75.00	3 3/4%	25 days		75.19
11.	66.87	2 1/2%	15 days		66.94
12.	876.00	6%	60 days		884.64
13.	111.10	2%	30 days		111.28
14.	50.00	5%	15 days		50.10
15.	697.00	4 1/2%	90 days		704.73

TO CALCULATE CARRYING CHARGES AND MONTHLY PAYMENTS:

The problem is:

Cash price = \$150; Installment price = \$185.90; Down payment = \$25.

Determine the carrying charge and the monthly payments over a 10-month period.

1. Clear the machine.
2. Set 2 decimal places.
3. Depress the $5/4$ key to round off to 2 decimal places.
4. Enter 185.90 into the keyboard.
5. Depress the \oplus key to store 185.90 in the memory.
6. Enter 150 into the keyboard.
7. Depress the $=$ key.
8. Depress the \odot to recall the 185.90.
9. Depress the \pm key.
10. Read the difference, the carrying charge, in the register window--35.90.
11. Enter 25 into the keyboard.
12. Depress the \ominus key.
13. Depress the \odot to recall the difference -- 160.90.
14. Depress the $:$ key.
15. Enter 10 into the keyboard.
16. Depress the \pm key.
17. Read the answer, 16.09, in the register window. 10 payments at 16.09.

So the equation is $185.90 - 25 = \text{carrying charges}$.

$$\frac{185.90 - 25}{10} = \text{monthly payments}$$

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CALCULATING CARRYING CHARGES AND MONTHLY PAYMENTS

	<u>Cash Price</u>	<u>Installment Price</u>	<u>Carrying Charges</u>	<u>Down Payment</u>	<u>Months</u>	<u>Monthly Payment</u>	<u>Carrying Charge</u>	<u>Monthly Payment</u>
1.	1500.00	1695.00		95.00	10		195.00	160.00
2.	1360.00	1675.00		307.00	12		315.00	114.00
3.	8570.00	12602.00		602.00	6		4032.00	200.00
4.	19429.00	21740.00		50.00	10		2311.00	2169.00
5.	577.00	865.00		30.00	10		288.00	83.50
6.	1437.00	2840.00		100.25	15		1408.00	182.65
7.	1670.00	1898.00		98.00	12		228.00	150.00
8.	1300.00	1697.00		300.20	24		397.00	58.20
9.	1298.00	1476.00		55.20	32		178.00	44.40
10.	200.00	500.00		50.00	12		300.00	37.50
11.	5876.00	7896.00		264.00	24		2020.00	318.00
12.	750.00	955.00		55.00	36		265.00	25.00
13.	500.00	1000.00		220.00	12		500.00	65.00
14.	2689.00	4588.00		100.00	15		1899.00	299.20
15.	75.00	150.00		5.00	10		75.00	14.50

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TO CALCULATE THE SELLING PRICE WITH MARKUP BASED ON COST:

The problem is:

Cost = \$35; Markup = 15%

1. Clear the machine.
2. Set 2 decimal places and depress the 5/4 key to round off to 2 decimal places.
3. Depress 35 into the keyboard.
4. Depress \oplus to store 35 into the memory.
5. Depress the x key.
6. Enter 15 into the keyboard.
7. Depress the % key.*
8. Depress \oplus key to store the markup in the memory.
9. Depress \odot to recall the cost (\$35.00) plus the markup (\$5.25).
10. Read the answer, the selling price, in the register window--\$40.25.

*If you do not use the % key, you will have to set 4 decimal places instead of 2 and enter 15% as .15 instead of 15%.

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CALCULATING THE SELLING PRICE WITH THE MARKUP BASED ON COST

	<u>Cost</u>	<u>Markup</u>	<u>Selling Price</u>	<u>ANSWERS</u>
1.	\$35.00	15%		\$40.25
2.	2.00	10%		2.20
3.	12.25	5%		12.86
4.	34.87	34%		46.73
5.	25.00	25%		31.25
6.	75.45	24%		93.56
7.	32.65	13%		36.89
8.	3.45	20%		4.14
9.	45.40	40%		63.70
10.	677.88	25%		847.35
11.	479.76	10%		527.74
12.	58.00	5%		60.90
13.	32.87	45%		47.66
14.	861.86	50%		1292.79
15.	65.75	3%		67.72
16.	97.00	33%		129.01
17.	62.98	8%		68.02
18.	57.87	43%		82.75
19.	75.00	19%		89.25
20.	402.00	20%		482.40
21.	55.00	7%		58.85
22.	75.46	34%		101.12
23.	71.98	9%		78.46
24.	43.76	23%		53.82
25.	66.66	10%		73.33

TO CALCULATE THE PERCENT OF MARKUP BASED ON COST:

The problem is:

Cost = \$55; Selling Price = \$70

1. Clear the machine.
2. Set 2 decimal places.
3. Depress the $5/4$ key to round off to 2 decimal places.
4. Enter 70 into the keyboard.
5. Depress \pm .
6. Enter 55 into the keyboard.
7. Depress $=$.
8. Depress the : key.
9. Depress 55 into the keyboard.
10. Depress the % key.*
11. Depress \pm .
12. Read the percentage, 27.27, in the register window.

*Step No. 10 can be omitted if you want your answer in a decimal form (.2727) rather than a percent, but you would have to set 4 decimal places instead of 2.

The equation is $\frac{70 - 55}{55}$

CALCULATING THE PERCENT OF MARKUP BASED ON COST

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>	<u>ANSWERS</u>
1.	\$195.65	\$210.75		7.72%
2.	357.00	478.00		33.89%
3.	197.50	275.86		39.68%
4.	478.87	678.88		41.77%
5.	378.64	654.32		72.81%
6.	234.76	453.12		93.01%
7.	124.34	321.32		158.42%
8.	276.45	541.02		95.7%
9.	609.90	765.98		25.59%
10.	421.34	890.10		111.25%
11.	178.96	287.98		60.92%
12.	743.76	867.99		16.7%
13.	454.54	632.43		39.14%
14.	600.00	825.00		37.5%
15.	321.67	846.87		163.27%
16.	876.32	987.65		12.7%
17.	732.00	976.34		33.38%
18.	375.24	942.56		151.19%
19.	275.25	375.50		36.42%
20.	100.01	423.00		322.96%
21.	258.98	300.00		15.84%
22.	376.98	742.87		97.06%
23.	410.00	750.00		82.93%
24.	864.98	900.75		4.14%
25.	374.75	775.75		107%

TO CALCULATE THE PERCENT OF MARKUP BASED ON SELLING PRICE

The problem is:

Cost = \$495; Selling Price = \$550

1. Clear the machine.
2. Set 2 decimal places.
3. Depress the $5/4$ key to round off to 2 decimal places.
4. Enter 550 into the keyboard.
5. Depress \pm .
6. Enter 495 into the keyboard.
7. Depress \pm .
8. Depress the : key.
9. Depress 550 into the keyboard.
10. Depress the % key.*
11. Depress \pm .
12. Read the percentage, 10, in the register window.

*Step No. 10 can be omitted if you want your answer in a decimal form (.10) rather than a percent, but you would have to set 4 decimal places instead of 2.

The equation is $\frac{550 - 450}{550}$

CALCULATING THE PERCENT OF MARKUP BASED ON SELLING PRICE

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>	<u>ANSWERS</u>
1.	\$745.00	\$899.95		17.22%
2.	567.00	789.00		28.14%
3.	432.50	645.00		32.95%
4.	325.45	645.00		49.54%
5.	234.00	345.00		32.17%
6.	895.00	987.00		9.32%
7.	789.00	854.25		7.64%
8.	325.00	400.00		18.75%
9.	687.00	777.77		11.67%
10.	899.00	976.00		7.89%
11.	743.00	798.00		6.89%
12.	456.00	567.50		19.65%
13.	321.00	456.00		29.61%
14.	145.50	234.00		37.82%
15.	476.00	500.00		4.8%
16.	378.45	478.50		20.91%
17.	589.00	678.00		13.13%
18.	453.00	567.00		20.11%
19.	278.00	365.00		23.84%
20.	890.00	999.00		10.91%
21.	456.75	760.00		39.9%
22.	376.25	456.75		17.62%
23.	586.55	675.50		13.17%
24.	321.25	425.50		24.5%
25.	475.75	595.75		20.14%

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INDIVIDUAL EXTENSIONS AND TOTAL

DIRECTIONS:

1. Multiply each unit price by the quantity and store it in the positive storage by depressing the \oplus key.
2. Write down the amount.
3. After the last extension depress the storage recall key and multiply the total by 4% to arrive at the amount of tax. Also store the amount of tax in the positive storage.
4. Depress the storage recall to recall the total plus tax.

	<u>Quantity</u>	<u>Unit Price</u>	<u>Extension</u>	<u>ANSWERS</u>
1.	16	4.28		\$ 68.48
2.	77	3.33		256.41
3.	14	1.99		27.86
4.	40	3.22		128.80
5.	15	3.09		46.35
6.	25	4.27		106.75
7.	4	1.18		4.72
8.	18	7.06		127.08
9.	12	5.66		67.92
10.	30	10.70		321.00
11.	25	6.75		168.75
12.	19	4.86		92.34
13.	17	3.24		55.08
		TOTAL		<u>1,471.54</u>
		4% Sales Tax		<u>58.86</u>
		Amount Due		<u>1,530.40</u>

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INDIVIDUAL EXTENSIONS AND TOTALS

	<u>Quantity</u>	<u>Unit Price</u>	<u>Extensions</u>	<u>ANSWERS</u>
1.	15	\$4.28		\$ 64.20
2.	75	3.33		249.75
3.	15	1.99		29.85
4.	45	3.22		144.90
5.	16	3.09		49.44
6.	24	4.27		102.48
7.	14	1.18		16.52
8.	24	7.06		169.44
9.	15	5.66		84.90
10.	33	10.70		353.10
11.	22	6.75		148.50
12.	40	4.86		194.40
13.	16	3.24		51.84
			TOTAL _____	1,659.32
			4% Sales Tax _____	66.37
			Amount Due _____	1,725.69

INDIVIDUAL EXTENSIONS AND TOTALS

	<u>Quantity</u>	<u>Unit Price</u>	<u>Extensions</u>	<u>ANSWERS</u>
1.	14	4.28		\$ 59.92
2.	74	3.33		246.42
3.	15	1.99		29.85
4.	34	3.22		109.48
5.	11	3.09		33.99
6.	19	4.27		81.13
7.	6	1.18		7.08
8.	18	7.06		127.08
9.	10	5.66		56.60
10.	36	10.70		385.20
11.	24	6.75		162.00
12.	14	3.24		45.36
13.	18	4.86		87.48
			TOTAL	<u>1,431.59</u>
			4% Sales Tax	<u>57.26</u>
			Amount Due	<u>1,488.85</u>

You have had an opportunity to work problems of each kind on the pretest. I suggest that you take the following sample post test to determine whether or not you need additional practice before taking the post test.

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DIRECTIONS FOR SAMPLE POST TEST

ELECTRONIC CALCULATOR

You will be given 40 minutes. Work quickly. If you finish in less than 40 minutes, use the remaining time to check your work.

1. Round cents off to two decimal places.
2. Round percentages off to two decimal places.
3. Round all products off to five decimal places.
4. Round all quotients off or up to five decimal places.
5. Punctuate all answers with commas and decimal points.
6. Indicate special notations in answers; for example - Cr., %.

$$\begin{array}{r}
 (1) \quad 72 \\
 69 \\
 30 \\
 16 \\
 \underline{22}
 \end{array}$$

$$\begin{array}{r}
 (2) \quad .4170 \\
 3.25 \\
 .105 \\
 32.1096 \\
 \underline{33.62}
 \end{array}$$

$$\begin{array}{r}
 (3) \quad 56,810 \\
 \underline{-49,619}
 \end{array}$$

$$\begin{array}{r}
 (4) \quad 17,923 \\
 \underline{-22,301}
 \end{array}$$

$$\begin{array}{r}
 (5) \quad 19.42 \\
 1.066 \\
 3.2105 \\
 -14.16 \\
 \underline{4.5}
 \end{array}$$

$$(6) \quad 19 \times 44 =$$

$$(7) \quad 7.23 \times 17.9 =$$

$$(8) \quad 16 \times 14 \times 4 \times 7 =$$

$$(9) \quad 17.4 \times 47.2 \times 19.2 =$$

$$(10) \quad 49.7 \times 6.18 \times 14.2 =$$

$$(11) \quad (93 \times 16) - (14 \times 21) =$$

$$(12) \quad (23 \times 31) - (17 \times 101) =$$

$$(13) \quad (48 \times 14) - (43 \times 29) =$$

$$(14) \quad 203 \text{ doz. at } \$1.19 =$$

$$(15) \quad 46 \text{ doz. at } \$1.19 =$$

$$(16) \quad 16 \text{ doz. at } \$1.19 =$$

$$(17) \quad 41 \text{ doz. at } \$1.19 =$$

$$(18) \quad 431 \text{ doz. at } \$1.19 =$$

$$(19) \quad 138 \text{ doz. at } \$1.19 =$$

$$(20) \quad 55 \text{ doz. at } \$1.19 =$$

$(21) 18 \div 4 =$

$(22) 96.6 \div 14 =$

$(23) 403 \div 1.02 =$

$(24) 13,709 \div 41 =$

$(25) 746 \div 19 =$

$(26) 195 \div 413 =$

$(27) 408 \div 2.35 =$

$(28) 1,055 \div 2.726 =$

$(29) 14,801 \div 19.25 =$

$(30) 72,202 \div 66 =$

INTEREST CALCULATION

	<u>Amount of Principle</u>	<u>Interest Rate</u>	<u>Period of Time</u>	<u>Amount to be Repaid</u>
31.	571	4 1/2%	51 days	
32.	402	5%	70 days	
33.	3,000	5 1/2%	60 days	
34.	4,719	6%	80 days	
35.	14,000	4%	70 days	
36.	8,975	4 1/2%	30 days	
37.	4,000	5%	180 days	
38.	9,000	4 1/2%	60 days	
39.	10,624	8%	45 days	
40.	14,905	7 1/4%	100 days	

	<u>Quantity</u>	<u>Unit Price</u>	<u>Extension</u>
41.	15	4.19	
42.	76	3.22	
43.	16	1.95	
44.	46	3.21	
45.	18	3.07	
46.	31	4.05	
47.	5	.19	
48.	19	7.05	
49.	14	4.65	
50.	32	.75	
51.		TOTAL	_____
52.		3% Sales Tax	_____
53.		Amount Due	_____

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DISCOUNTS AND NET AMOUNTS

	<u>Amount</u>	<u>Discount Rate</u>	<u>Amount of Discount</u>	<u>Net Amount</u>
54/55	290.00	5%		
56/57	325.00	4 1/2%		
58/59	420.20	10%		
60/61	1,470.00	5 3/4%		
62/63	90.00	6%		
64/65	199.75	7 1/4%		
66/67	620.20	12%		
68/69	80.55	2%		
70/71	240.30	4 1/2%		
72/73	560.00	14%		

CALCULATING THE PERCENT OF MARKUP BASED ON COST

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>
74.	16.00	20.00	
75.	5.00	5.20	
76.	165.20	199.95	
77.	195.20	215.00	
78.	255.00	300.00	

CALCULATING THE PERCENT OF MARKUP BASED ON SELLING PRICE

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>
79.	\$ 30.00	\$ 35.00	
80.	45.00	50.00	
81.	123.00	129.95	
82.	175.00	210.00	
83.	218.35	314.06	

CALCULATING THE SELLING PRICE WITH MARKUP BASED ON COST

	<u>Cost</u>	<u>Markup</u>	<u>Selling Price</u>
84.	\$ 26.00	20%	
85.	18.00	18%	
86.	235.75	25%	
87.	228.80	40%	
88.	40.00	12%	

	<u>Cash Price</u>	<u>Instalment Price</u>	<u>Carrying Charge</u>	<u>Down Payment</u>	<u>Months</u>	<u>Monthly Payment</u>
89/90	\$400.00	\$550.00		\$50.00	10	
91/92	995.00	1,110.00		30.00	9	
93/94	1,100.00	1,422.00		160.00	8	
95/96	795.00	950.00		75.00	10	
97/98	600.00	800.00		212.00	6	
99/100	1,100.00	1,500.00		360.00	12	

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ANSWERS TO SAMPLE POST TEST

ELECTRONIC CALCULATOR

1. 209	26. .47215	51. \$891.24	76. 21.04%
2. 69.5016	27. 173.61702	52. 26.74	77. 10.14%
3. 7,191	28. 387.01394	53. 917.98	28. 17.65%
4. 4,378 Cr.	29. 768.88312	54. \$14.50	79. 14.29%
5. 11.9045	30. 1,093.967	55. 275.50	80. 10%
6. 836	31. 574.59	56. 14.62	81. 5.35%
7. 129.417	32. \$405.85	57. 310.38	82. 16.67%
8. 6,272	33. \$3,029.84	58. 42.02	83. 30.48%
9. 15,768.576	34. \$4,781.06	59. 378.18	84. \$31.20
10. 4,361.4732	35. \$14,107.40	60. 84.52	85. 21.24
11. 1,194	36. \$9,008.20	61. 1,385.48	86. 294.69
12. 1,004 Cr.	37. \$4,098.63	62. 5.40	87. 320.32
13. 575 Cr.	38. \$9,066.58	63. 84.60	88. 44.80
14. \$241.57	39. \$10,728.78	64. 14.48	89. 150.00
15. \$54.74	40. \$15,201.06	65. 185.27	90. 50.00
16. \$19.04	41. \$62.85	66. 74.42	91. 115.00
17. \$48.79	42. 244.72	67. 545.78	92. 120.00
18. \$512.89	43. 31.20	68. 1.61	93. 322.00
19. \$164.22	44. 147.66	69. 78.94	94. 157.75
20. \$65.45	45. 55.26	70. 10.81	95. 155.00
21. 4.5	46. 125.55	71. 229.49	96. 87.50
22. 6.9	47. .95	72. 78.40	97. 900.00
23. 395.0980	48. 133.95	73. 481.60	98. 98.00
24. 334.36585	49. 65.10	74. 25%	99. 400.00
25. 39.26316	50. 24.00	75. 4%	100. 95.00

If the sample post test indicates that you are ready for the post test, please ask me for it. If you feel you need further practice, please work additional problems of the type which gave you difficulty.

Supplementary problems can be found in the back of the workbook.

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TAPE AND FILM INDEX

<u>Tape No.</u>	<u>Film No.</u>	<u>Subject</u>
1	1	Rotary Calculator
2	2	Semi-automatic Monroe Rotary Calculator
3	3	Fully Automatic Monroe Rotary Calculator
4	4	Fully Automatic Friden Rotary Calculator
5	5	Fully Automatic Marchant Rotary Calculator
6	6	Underwood-Olivetti Ten-Key Calculator
7	7	Victor Ten-Key Calculator
8	8	Victor Full Keyboard Adding-Listing
9	9	Victor Ten-Key Adding-Listing
10	10	Burroughs Ten-Key Adding-Listing
11	11	Olympia CD 400 Electronic Calculator

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APPENDICES

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TABLE OF DECIMAL EQUIVALENTS OF COMMON FRACTIONS

2nds	3rds	4ths	5ths	6ths	7ths	8ths	9ths	10ths	11ths	12ths	Equivalents
										1/12	.083333
									1/11		.090909
								1/10			.100000
							1/9				.111111
						1/8					.125000
					1/7						.142857
				1/6						2/12	.166667
									2/11		.181818
			1/5					2/10			.200000
							2/9				.222222
		1/4				2/8				3/12	.250000
									3/11		.272727
					2/7						.285715
								3/10			.300000
	1/3			2/6			3/9			4/12	.333333
									4/11		.363636
						3/8					.375000
			2/5					4/10			.400000
										5/12	.416665
					3/7						.428572
							4/9				.444444
									5/11		.454546
1/2		2/4		3/6		4/8		5/10		6/12	.500000
									6/11		.545455
							5/9				.555556
					4/7						.571429
										7/12	.583331
			3/5					6/10			.600000
						5/8					.625000
									7/11		.636364
	2/3			4/6			6/9			8/12	.666667
								7/10			.700000
					5/7						.714287
									8/11		.727273
		3/4				6/8				9/12	.750000
							7/9				.777778
			4/5					8/10			.800000
				5/6					9/11		.818182
					6/7					10/12	.833333
						7/8					.857144
							8/9				.875000
								9/10			.888889
									9/10		.900000
									10/11		.909091
										11/12	.916663

RECIPROCAL OF NUMBERS

1. .10000	46. .021739	91. .010989	136. .0073529
2. .50000	47. .021277	92. .010870	137. .0072992
3. .33333	48. .020833	93. .010753	138. .0072463
4. .25000	49. .020408	94. .010638	139. .0071942
5. .20000	50. .020000	95. .010526	140. .0071428
6. .16667	51. .019608	96. .010417	141. .0070921
7. .14286	52. .019231	97. .010309	142. .0070422
8. .12500	53. .018868	98. .010204	143. .0069930
9. .11111	54. .018519	99. .010101	144. .0069444
10. .10000	55. .018182	100. .010000	145. .0068965
11. .090909	56. .017857	101. .0099010	146. .0068495
12. .083333	57. .017544	102. .0098039	147. .0068027
13. .076923	58. .017241	103. .0097087	148. .0067567
14. .071429	59. .016949	104. .0096154	149. .0067114
15. .066667	60. .016667	105. .0095238	150. .0066666
16. .062500	61. .016393	106. .0094340	151. .0066225
17. .058824	62. .016129	107. .0093458	152. .0065789
18. .055556	63. .015873	108. .0092593	153. .0065359
19. .052632	64. .015625	109. .0091743	154. .0064935
20. .650000	65. .015385	110. .0090909	155. .0064516
21. .047619	66. .015152	111. .0090090	156. .0064103
22. .045455	67. .014925	112. .0089286	157. .0063694
23. .043478	68. .014706	113. .0088496	158. .0063291
24. .041667	69. .014493	114. .0087719	159. .0062893
25. .040000	70. .014286	115. .0086957	160. .0062500
26. .038462	71. .014085	116. .0086207	161. .0062111
27. .037037	72. .013889	117. .0085470	162. .0061728
28. .035714	73. .013669	118. .0084746	163. .0061349
29. .034483	74. .013514	119. .0084034	164. .0060975
30. .033333	75. .013333	120. .0083333	165. .0060606
31. .032258	76. .013158	121. .0082645	166. .0060240
32. .031250	77. .012987	122. .0081967	167. .0059880
33. .030303	78. .012821	123. .0081301	168. .0059523
34. .029412	79. .012658	124. .0080645	169. .0059171
35. .028571	80. .012500	125. .0080000	170. .0058823
36. .027778	81. .012346	126. .0079365	171. .0058479
37. .027027	82. .012195	127. .0078740	172. .0058139
38. .026316	83. .012048	128. .0078125	173. .0057803
39. .025641	84. .011905	129. .0077519	174. .0057471
40. .025000	85. .011765	130. .0076923	175. .0057142
41. .024390	86. .011628	131. .0076335	176. .0056818
42. .023810	87. .011494	132. .0075757	177. .0056497
43. .023256	88. .011364	133. .0075187	178. .0056179
44. .022727	89. .011236	134. .0074626	179. .0055865
45. .022222	90. .011111	135. .0074074	180. .0055555

Many of the manuals furnished by the equipment manufacturers will include a chart of reciprocals. That will be a good reference should you need reciprocals of numbers higher than 180.

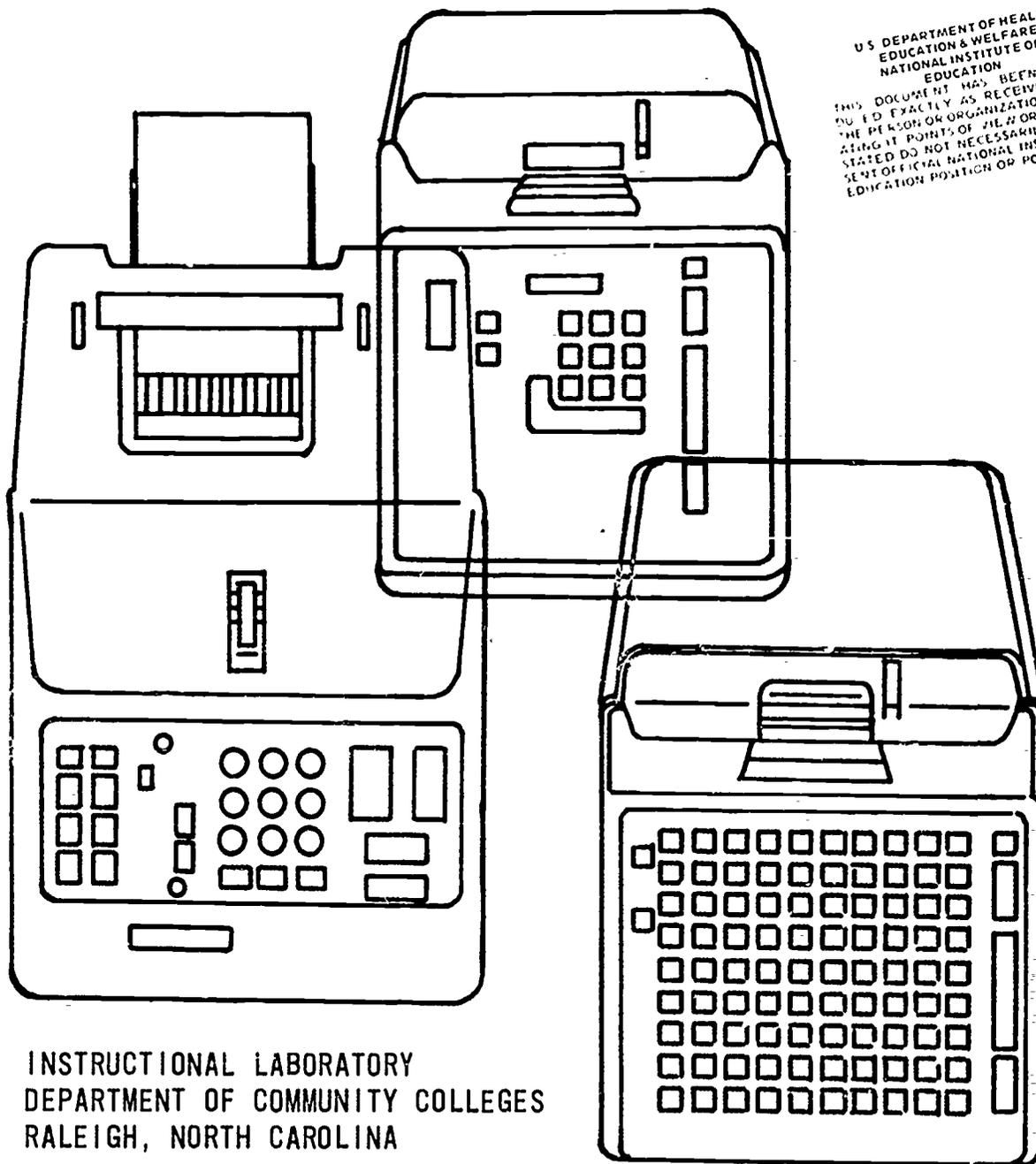
CORRECTION OF ERRORS IN THE STUDENT EDITION OFFICE MACHINES WORKBOOK

	<u>Page</u>	<u>Problem</u>	<u>Correct Answers</u>	<u>Incorrect Answers</u>
10-Key Calculator	48	Gas	+ 28.35%	+ 28.36%
Rotary Calculator	76	19	81.69	81.690
		22	6,898.753	6,898.7530
	77	10	.55219	.55218
		12	359.98862	359.98861
	78	9	16.73228	16.73227
	79	2	3,505.78766	3,505.78765
	81	7	2,590.33402	2,590.3334
		8	351.62496	351.625
		9	32.99967	32.49997
		10	11.87495	11.675
	89	5	59	59
		12	519.19354	680.64516
	99	15	1,279.662	1,279.662
10-Key Adding	109	10	466.830	466.830
	119	23	1,066.5	5,066.5
Full-Key Adding	148	21	40.002	40.0002
		23	4.3329	4.3399
Electronic	211	1	185.34464	185.34467
		4	130.07112	130.07122
		20	.60311	.6031
	217	3	\$2,000.00	\$200.00
	219	9	63.56	63.70
	234	5	14.0365	11.9045

	<u>Page</u>	<u>Problem</u>	<u>Correct Answers</u>	<u>Incorrect Answers</u>
Electronic		23	395.09804	395.0980
		60	84.53	84.52
		61	1,385.47	1,385.48

PLEASE MAKE NOTE OF THESE MISTAKES; AND IF YOU FIND ANY ERRORS NOT NOTED,
PLEASE LET US KNOW SO THEY CAN BE CORRECTED.

OFFICE MACHINES



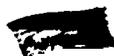
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RALEIGH, NORTH CAROLINA

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BUSINESS MACHINES

A Self-Instructional Course

by

Frances K. Andrews
Instructor
Central Carolina Technical Institute
Sanford, North Carolina

This programmed office machines text, instructor's manual, and 8mm (with sound) instructional films has been prepared for use in Office Machines (BUS 110). While the material has been copyrighted, permission has been given to the Department of Community Colleges for distribution to North Carolina technical institutes and community colleges.

This programmed office machines course covers the following machines:

- *Semi-automatic Monroe rotary calculator
- *Fully-automatic Monroe rotary calculator
- *Fully-automatic Friden rotary calculator
- *Fully-automatic Marchant rotary calculator
- *Underwood-Olivetti ten-key calculator
- *Victor ten-key calculator
- *Victor full keyboard adding-listing
- *Victor ten-key adding-listing
- *Burroughs ten-key adding-listing
- *Olivetti electronic calculator

Films: Twenty-one 8mm instructional films (with sound) have been prepared for use with this text. While only the original copy of the films, currently in use at Central Carolina Technical Institute, are presently available, CCTI will cooperate with other institutions in acquiring copies of these films. Schools interested in using these films are invited to visit CCTI to review the films for possible use in their course. While the films are not required to support the course, they are considered a valuable method of presentation.

Text: Each student text contains a sample pretest for the student who has had prior training on a specific machine, a section of problems and instructions are provided along with the answers at the end of each section, and a sample posttest for practice before taking the final test on that machine.

Instructor's manual: This manual contains instructions on the operation of each machine. It also provides from one to three pretests and posttests with answers to indicate if a student needs further work on a specific machine.

Scripts: Scripts give detailed instructions on the operation of each machine and can be used in addition to the instructional films. If the films are not used in this course, copies of these instructions can be distributed to students for their study.

T-BUS 110
(Programmed)

TEACHER EDITION

SELF-INSTRUCTIONAL COURSE
IN
BUSINESS MACHINES

August 1972

by
Frances K. Andrews
Instructor
Central Carolina Technical Institute

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INTRODUCTION

This programmed office machines course covers the following machines:

1. Semi-automatic Monroe rotary calculator
2. Fully-automatic Monroe rotary calculator
3. Fully-automatic Friden rotary calculator
4. Fully-automatic Marchant rotary calculator
5. Underwood-Olivetti ten-key calculator
6. Victor ten-key calculator
7. Victor full-keyboard adding-listing
8. Victor ten-key adding-listing
9. Burroughs ten-key adding-listing
10. Olympia electronic calculator

Instructional films and tapes are available for each of these machines, and the script for each tape and film is included in this manual.

Script No. 1 is an introduction to the rotary calculator, and it demonstrates proper finger techniques and explains the differences in the various rotary calculators.

All the other scripts are instructions for specific machines.

In addition to the scripts, this manual includes at least three post tests on each machine and evaluation sheets.

Supplies Needed

Timers

Ribbons for replacement

Paper tape for replacement

Manufacturer's manual for each machine

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Supplies Needed if Instructional Films are Used

Timers

Ribbons for replacement

Paper tape for replacement

Manufacturer's manual for each machine

Poster paper on side walls, on which to show films

Cart to move machines from place to place

10 8mm projectors with sound, or

10 Cassette tape players if only the tapes are used, or

10 Cassette tape players and 10 8mm projectors without sound

10 sets of earphones for the cassette tape players or 8mm projectors with sound

If the films and tapes are not used, it is recommended that the instructor use the first few days of class to discuss very generally the unique characteristics and finger techniques of each machine.

With a good introduction, the student should be able to follow the script and learn how to work all of the problems in the workbook and on the post test, using the manufacturer's manual to locate the machine parts.

Students should be encouraged to write down the answers in the workbook to check the placement of decimals. So often a student will check the answer on the tape with the answer in the workbook without regard for the decimals; and, of course, an answer with an incorrectly placed decimal is a wrong answer.

As with all machines courses, students who are weak in math will need extra help in handling percentages, decimals, and reciprocals. Since the students who have strong math backgrounds or previous experience on these machines can proceed on their own, the instructor has more time to give individual help to the weaker students.

It would be very helpful if a machines lab situation exists whereby a student assistant or para-professional could give and check post tests, further relieving the instructor to give individual help where needed.

Because specific objectives are established, many students will finish early. This is also advantageous since it further frees the instructor to give individual help and allows the student who masters the objective early to spend his time on other courses which are more demanding of him.

Pages 14 through 19 in the workbook explain the grading system, reporting inoperative machines, care of machines, etc.

ROTARY CALCULATORS
TAPE NO. 1

Monroe, Friden, and Marchant are manufacturers of most rotary calculators used today. However, there are several different models, all operated basically the same. We will be talking about and working with:

- a semi-automatic Monroe
- a fully-automatic Monroe
- a fully-automatic Friden
- a fully-automatic Marchant

These machines are easily recognized. They have:

1. A movable carriage with two sets of "rotating" answer dials-- a short set of dials called the counter dial and a long set called the register dial.
2. Dial locks, tab stops, and constant multiplier levers attached to the movable carriage.
3. A series of decimal markers attached to both the counter dial and register dial.
4. A keyboard with 7, 10, or more rows of keys, each of which begins with one at the end of machine nearest the operator and ascends to nine at the opposite end--very similar to a full keyboard.
5. A minus (-) bar, a plus (+) bar, multiplier and division keys, carriage shift bars, and a series of clear and tabular keys.

Some rotary calculators might not have one or more of these features. For example, the semi-automatic Monroe has no multiplier key as multiplication is done by repeated addition and no constant multiplier and tab set key.

Have you noticed that the rotary calculator has no paper tape or ribbon? This is an advantage in that it permits faster operations and

relieves the operator of having to change ribbons and of having to put on new tape. It might be a disadvantage if printed records of calculations were needed.

Note the difference in the machine.

On the Monroe machines, the multiplier is set into the keyboard.

On the Marchant, the multiplier is set into the automatic multiplier keys.

On the Friden, the multiplier is set into a special multiplier keyboard.

Problems are solved by depressing keys in columns on the keyboard and depressing the proper bar.

The multiple-key depression technique permits you to depress two or more keys at one time, using your thumb, and first and second fingers to depress the numbers and the third or fourth finger to operate the bars.

The same finger movements are used on all rotary calculators, and these finger movements are:

1. Use the first two fingers to depress two-digit numbers near each other. For example:

22	42	31
77	13	57
44	57	35
55	24	46

2. Use the thumb and first finger when numbers are farther apart.

25	17
52	81
36	61
63	19

3. Use the thumb and first or second finger for three-digit numbers, the first or last two of which are the same. Try to read the numbers at a glance without taking a second look.

223	886
334	477
442	422
775	533

4. Use the thumb and first and second fingers to depress three-digit numbers.

234
456
489
831

5. Use two hand motions to depress four-digit numbers.

69.45
35.99
78.31
19.25

6. Use three hand motions to depress five- or six-digit numbers.

478,942
784,376
192,145

Remember: try to read numbers at a quick glance. Avoid splitting numbers into sections for reading.

Now let's review briefly the main characteristics of a rotary calculator.

Try to locate these as I review them, and touch them as I point them out and call them by their proper name.

1. A counter dial and a register dial
2. Movable carriage
3. Decimal markers
4. Carriage shift bars
5. A keyboard with seven or more rows of keys--these rows are sometimes called banks by the manufacturers.

Were you able to identify all these parts of your machine?

Good, you are ready to begin to master a very interesting and exciting machine.

As I point out in this film the four types we have in our class, look for the one on which you will work--the one you have in front of you.

1. Semi-automatic Monroe
2. Fully-automatic Monroe
3. Fully-automatic Friden
4. Fully-automatic Marchant

After you have identified your machine, ask for tape and film on that particular machine. If you have the semi-automatic Monroe, ask for tape No. 2 and film No. 2.

If you have the fully-automatic Monroe, ask for tape No. 3 and film No. 3.

If you have the fully-automatic Friden, ask for tape No. 4 and film No. 4.

If you have the fully-automatic Marchant, ask for tape No. 5 and film No. 5.

8
2/11

MONROE SEMI-AUTOMATIC ROTARY CALCULATOR
TAPE NO. 2

Script for Tape No. 2 to Accompany Film No. 2

This Monroe semi-automatic rotary calculator is very popular because of its small size, its rapidity and accuracy of operation, and its modest cost. It is called semi-automatic because it does not have an automatic multiplier. Multiplication is done by repeated addition, which is really what multiplication is anyway. You might say 3 times 4 equals 12, or you might add three 4's together and get the same answer.

$$3 \times 4 = 12 \quad \text{or} \quad 4 + 4 + 4 = 12$$

As we go through the steps for addition, subtraction, multiplication, and division, work the problems with me on the Monroe semi-automatic rotary calculator.

Addition is the simplest operation, so we shall begin with that.

Addition

The carriage should be all the way to the left, the normal position for adding. Depress the left shift key. It is the key with an arrow pointing to the left. The extreme right column is for units, the second column from the right for tens, the third column from the right for hundreds, etc.

You may clear all dials and the keyboard by simultaneously depressing the upper dial clear key, the lower dial clear key, and the keyboard clear key, or by depressing the "C" clear key which not only clears both dials and the keyboard but also moves the carriage to the extreme left. Always do this before you begin a problem to make sure the machine is clear.

If numbers from a previous problem are in the machine, they will be added into your new problem. If you want to clear only the keyboard, depress the keyboard clear key. If you want to clear only the upper dial, depress the upper dial clear key. If you want to clear only the lower dial, depress the lower dial clear key.

Disengage the repeat lever (the "R" stands for repeat, and the "nr" stands for non-repeat). This permits keyboard to clear when plus bar is hit.

The add (+) key should be up so that the number of revolutions will be added and read in the counter dial. There is a minus (-) position for negative multiplication, and a neutral position (0) for division.

Depress addends into the keyboard and add them in with the plus bar.

33 - tap plus bar
38 - tap plus bar
224 - tap plus bar
798 - tap plus bar

1,093

Read the answer 1,093 (the sum or total) in the lower dial, the register dial as it is called. The counter dial, the upper dial, counts the number of subtraction and addition revolutions.

We will add numbers that contain decimals. Move the decimal indicators on the keyboard and register dial two decimal places to the left, and we will add.

\$ 4.79 - tap plus bar
3.24 - tap plus bar
7.91 - tap plus bar
19.47 - tap plus bar

\$35.41

Now, let's add some numbers with more than two decimal places. Suppose some figures have three decimals; some, two; some, four. Let's place our decimal point at a place that will accommodate the largest number of decimal places; that is, four. Always do this when you have a varying amount of decimals. Enter the addends into the keyboard around the decimal.

$$\begin{array}{r}
 47.19 \\
 33.214 \\
 194.1 \\
 \underline{1,643.0017} \\
 1,917.5057
 \end{array}$$

Verification is obtained by getting the same answer twice since there is no printed tape to check.

Subtraction

To perform simple subtraction, move the carriage all the way to the left. Clear all dials and the keyboard. Disengage repeat lever. The plus (+) key should be up.

Depress the minuend 145 into the keyboard and add it in with the plus bar. Then depress the subtrahend 50 into the keyboard and tap the minus bar. Read the answer in the register dial.

$$\begin{array}{r}
 145 \\
 \underline{-50} \\
 95
 \end{array}$$

Suppose you want to subtract 450 from 79, clear keyboard and dials, depress the minuend (79) into the keyboard and add it into the machine with the plus bar; depress the subtrahend (450) into the keyboard and subtract it by tapping the minus bar. Read the answer in the register dial. It reads:

9999999999629

That is not the answer. These 9's indicate that a credit answer has been calculated. The 629 preceded by the 9's is the complement of the answer. A complement of a number is the difference between the number and the next higher power of 10, which in this case is 1,000.

To convert the complement into a credit balance:

1. Depress 629 on the keyboard and precede it by as many 9's as are in the keyboard's capacity.
2. Engage the repeat key (up position so that you can see the "r").
3. Tap the minus bar twice.

The answer is 371. Be sure to indicate a credit balance with a minus sign or label them Cr. or credit.

$$\begin{array}{r} 79 \\ -450 \\ \hline \end{array}$$

371 Cr.

Caution: Be sure and disengage repeat key before working further problems.

Constants in Addition

A fixed figure that is added or subtracted again and again and again to different numbers (called variables) is called constant.

Constant	+	Variable	= Sum
7.40		15.25	22.65
7.40		17.95	25.35
7.40		21.30	28.70

To add constants:

1. Clear machine.
2. Set decimal markers.
3. Enter constant of 7.40 onto keyboard and depress plus bar.

12
245

4. Enter variable of 15.25 onto keyboard.
5. Engage repeat key.
6. Depress plus bar.
7. Record sum.
8. Depress minus bar to subtract variable that has been held in keyboard.
9. Clear keyboard.
10. Enter second variable into keyboard and depress plus bar.
11. Record sum.
12. Depress minus bar to subtract variable that has been held in keyboard.
13. Repeat for as many variables as you have.

Constants in Subtraction

Variable	-	Constant	= Difference
75.45		17.50	57.95
35.00		17.50	17.50
54.17		17.50	36.67

To subtract constants:

1. Clear machine and disengage repeat key.
2. Enter constant into keyboard.
3. Depress minus bar.
4. Enter variable into keyboard.
5. Engage repeat key.
6. Depress plus bar.
7. Read and record difference.
8. Depress minus bar to subtract variable that has been held in keyboard.
9. Clear keyboard.

10. Enter second variable into keyboard.
11. Depress plus bar.
12. Read and record difference.
13. Depress minus bar to subtract variable that has been held in keyboard.
14. Repeat for as many variables as you have.

Multiplication

Since this machine is semi-automatic, we will multiply by the use of repeated addition.

1. Move the carriage all the way to the left and clear keyboard and dials by depressing the "C" key.
2. Engage repeat key and move decimal markers.
3. Add key should be in up position. This counts the revolutions, and the number will be shown in the counter dial.

The problem is 1276×743 .

1. Depress the multiplicand (743) into the keyboard. Tap the plus bar six times (the first number on the right in the multiplier. This will register in the counter dial.
2. Move the carriage one row position to the right by depressing the tab key pointing in that direction. Now tap the plus bar seven times. Notice that this number also registers in the counter dial.
3. Again move the carriage one row position to the right by depressing the tab key pointing in that direction. Tap the plus bar two times. The two appears in the counter dial.
4. Again move the carriage one row position to the right by depressing the tab key. Tap the plus bar one time.

The product, 948,068, is shown in the register dial.

The multiplier, 1,276, is shown in the counter dial.

The multiplicand is still depressed in the keyboard.

Note: Always punctuate your answers. 948,068 is much easier to read with a comma in it.

Decimals in Multiplication

Multiplying numbers with decimals is exactly the same as other multiplication except that decimal points must be marked off.

Suppose you wanted to multiply 5.25 by 3. Clear dials and keyboard with "C" key. Depress multiplicand (5.25) into the keyboard, and multiply by 3. You would get an answer of 1,575 or 15.75 when you marked off the decimal places. The number of places marked off is equal to the number of decimal places in the multiplier plus the number of decimal places in the multiplicand.

However, it is much easier to work around fixed decimals so that you will not have to add the number of decimals in the multiplier and in the multiplicand every time you work a problem.

Let me explain:

$$19.45 \times 17.304 =$$

$$24.19 \times 39.1643 =$$

$$45.1076 \times 25.3071 =$$

One of these problems will have 5 decimal places in the product; one, 6; and one, 8. Four is the largest number of decimal places in the multiplier, so let's mark off four places in the counter dial by moving the decimal marker four places to the left. Four is also the largest number of decimals in the multiplicand, so let's mark off four places in the keyboard by uncovering the decimal marker four places to

the left. Four decimals in the multiplier plus four decimals in multiplicand equals 8, so let's mark off 8 places in the register dial where the answer appears.

Clear all dials and the keyboard by depressing the "C" key.

1. Depress the multiplicand (17.304) into the keyboard around the decimals. It will appear 17.3040.
2. Multiply around fixed decimals in the counter dial by moving the carriage as is necessary. Notice the arrow pointing to the proper column around the decimal marker. The multiplier appears to be 19.4500.
3. Read the answer in the register dial 336.56280000. Round all answers to five decimal places. In this case, however, the product will contain 4 decimal places, since we drop the zeros.

Multiplying Three Factors

$$5.77 \times 7.4 \times 9.2$$

Multiply the first two factors as you normally would, and it is much easier and faster to work around fixed decimals.

1. Clear all dials and the keyboard by depressing the "C" key.
2. Depress the first factor (5.77) into keyboard around the decimal.
3. Move carriage so that it is in proper position to multiply around decimals.
4. Multiply by the second factor (7.4).
5. Clear keyboard.
6. Depress product of first operation (42.698) into the keyboard around the decimals.
7. Clear upper and lower dials.
8. Multiply by third factor (9.2).
9. Read the product in the register dial (392.8216).

Accumulated Multiplication

Suppose you wanted the sum of:

$$\begin{array}{r} 6 \quad \times \quad 1.4 \\ 5 \quad \times \quad 15.7 \\ \hline 4.3 \times 8.7 \end{array}$$

You could find the product of each multiplication and add the three products together to get the sum. But on a rotary calculator, there is an easier way. Let's continue to work around a 4-4-8 fixed decimal program.

1. Clear dials and keyboard.
2. Register dial locks in down position. This keeps the product of the first multiplication in the register dial and adds it to the second and third operation, or as many as you have.
3. Depress the multiplicand (1.4) into the keyboard around the decimals.
4. Move the carriage to the proper position to multiply around the decimals and multiply by 6.
5. Depress the "C" key to clear. Notice that the product (8.4) remains in the register dial.
6. Depress the second multiplicand (15.7) into the keyboard around the decimals.
7. Move the carriage to the proper position to multiply around fixed decimals and multiply by 5.
8. Depress the "C" key to clear. Again, notice that the sum of the first two products (86.9) remains in the register dial.
9. Depress the third multiplicand (8.7) into the keyboard around the decimals.
10. Move the carriage to proper position to multiply around decimals and multiply.
11. Read the answer (124.31) in the register dial.
12. Register dial lock should be moved to up position to clear register dial.

17 2.30

Dial Locks

We have three locks:

1. The top one locks the upper dial.
2. The left lower one locks the left side of the lower dial.
3. The right lower one locks the right side of the lower dial.

Negative Multiplication

Negative multiplication is repeated subtraction, the same as positive multiplication is repeated addition.

Here again, it is better to use preset decimals if possible.

\$150 less 25%, less 10%, less 5%

1. The add key (+) at zero (neutral) position.
2. Register dial lock in down position.
3. Engage repeat key.
4. Depress 150 onto keyboard around the decimals.
5. Multiply by 1 to get \$150 into the register dial.
6. The add (+) key at minus (-) position.
7. Multiply negatively by .25 by hitting the minus bar.
8. Clear with the "C" key.
9. Depress product shown in the register dial (112.5) onto the keyboard around decimals.
10. Multiply negatively by .1 by hitting the minus bar.
11. Clear with the "C" key.
12. Depress product (101.25) as shown in register dial onto keyboard around the decimals.

13. Multiply negatively by .05.
14. Read the answer in the register dial 96.1875 rounded off to 96.19.
15. Unlock the register dial and clear with the "C" key.

Division

The dividend can be depressed into the keyboard at three different places: at the extreme right of machine, at extreme left of machine, or around fixed decimals.

Dividing at the Extreme Right of the Keyboard

$$126 \div 5$$

1. Move carriage to extreme left by depressing the shift key with the arrow pointing to the left.
2. Disengage the repeat key.
3. The add key at zero (0) or neutral position.
4. Depress the dividend (126) into the keyboard at extreme right.
5. Tap plus bar.
6. Depress divisor into the keyboard with the first digit of the divisor aligned with the first digit of the dividend in the register dial. This is done by moving the carriage.
7. Tap the divide equal key.
8. The quotient (25) appears in the counter dial, with the remainder of 1 shown in the register dial.

Note: This is the only way to get an answer with a remainder; otherwise, the answer in the counter dial will show as many decimal places as the counter dial will accommodate.

Dividing at the Extreme Left of the Keyboard

1. Move the carriage to extreme right by depressing the shift key with the arrow pointing to the right.
2. Clear dials from previous operation.
3. Depress dividend (126) into extreme left of keyboard.
4. Tap enter dividend key.
5. Depress divisor into keyboard with first digit in divisor aligned with the first digit of dividend in register dial.
6. Depress divide equal key.
7. The quotient is 25.2 as read in the counter dial.

Let's work the problem again, paying attention to the decimals.

1. Notice that you do not have to clear the dials because they clear automatically when the dividend is entered with the enter dividend key instead of the plus bar.
2. Depress dividend (126) into keyboard at extreme left.
3. Tap enter dividend key. The "enter dividend" key clears counter dial and moves carriage to extreme right at the same time.
4. Notice the register dial; the 126 appears with 12 zeros after it, so we can assume that these are decimal places. Move the decimal marker so that it reads 126.000000000000.
5. Next depress the divisor into the keyboard with the first digit in divisor directly under the first digit in dividend. There are 7 keys after the 5 on the keyboard, so we can assume, even though the zeros are not depressed that the divisor is 5.0000000, or 7 decimal places. Uncover the decimal so that the keyboard reads 5.0000000. Subtract the number of decimal places in the divisor (7) from the number of decimal places in the dividend (12) to see how many decimal places will appear in the quotient--5. Move the decimal marker in the upper dial five places from the right.
6. Tap divide equal key.
7. Read the answer in counter dial--25.2 (decimal point being 5 places from the right).

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273

Dividing Around Fixed Decimals

The number of decimals in the register dial minus the number of decimals in the keyboard equals the number of decimals in counter dial where quotient is read.

1. The first step in dividing around fixed decimals is to decide on a program, using the formula just stated, such as

4 decimals in the keyboard		4 decimals in the keyboard
4 decimals in the counter dial	or	5 decimals in the counter dial
8 decimals in the register dial		9 decimals in the register dial
2. Clear all dials and keyboard.
3. Depress the dividend 126 into the keyboard around decimals.
4. Move carriage using the shift key so that the decimal in keyboard is aligned with decimal in the register dial.
5. Tap plus bar.
6. Depress divisor (5) into keyboard around decimals.
7. Tap divide equal key.
8. Read quotient in counter dial--25.2.

The advantage of dividing around fixed decimals is that you do not have to subtract the decimal places on the keyboard (divisor) from the decimal places in the register dial (dividend) to know how many decimal places are in the counter dial (quotient).

The disadvantage is that you will have to enter the dividend with the plus bar and clear counter dial before you work the next problem because this semi-automatic Monroe rotary has no tab set key as the fully automatic rotary calculators have. The tab is permanently set in one position. You would be limited to the following programs:

DECIMAL PROGRAMS

Register		Counter		Keyboard
11	-	7	=	4
10	-	7	=	3
9	-	7	=	2
8	-	7	=	1

In each of these combinations, you would have only one whole number and 7 decimal places in the counter dial; and if the quotient has more than one whole number, this is inadequate.

For example, divide 126 by 5.

1. Depress dividend into the keyboard.
2. Depress the enter dividend key.
3. Depress divisor into the keyboard.
4. Depress the divide equal key.
5. Read the quotient in the counter dial.

The counter dial shows 5.2, and the correct answer is 25.2.

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the rotary calculator. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

MONROE AUTOMATIC ROTARY CALCULATOR
TAPE NO. 3

Script for Tape No. 3 to Accompany Film No. 3

This Monroe automatic rotary calculator is very popular because of its small size, its rapidity and accuracy of operation, and its modest cost. It is called automatic because it divides and multiplies automatically.

As we go through the steps for addition, subtraction, multiplication, and division, work the problems with me on the Monroe automatic rotary calculator.

Addition is the simplest operation, so we shall begin with that.

Addition

The carriage should be all the way to the left, the normal position for adding. Depress the left shift key. It is the key with an arrow pointing to the left. The extreme right column is for units, the second column from the right for tens, the third column from the right for hundreds, etc.

You may clear all dials and the keyboard by simultaneously depressing the upper dial clear key, the lower dial clear key, and the keyboard clear key, or by depressing the clear multiplier key which not only clears both dials and the keyboard but also moves the carriage to the extreme right or left. Always do this before you begin a problem to make sure the machine is clear. If numbers from a previous problem are in the machine, they will be added into your new problem. If you want to clear

only the keyboard, depress the keyboard clear key. If you want to clear only the upper dial, depress the upper dial clear key. If you want to clear only the lower dial, depress the lower dial clear key.

Disengage the repeat lever (the "c" stands for repeat). This permits keyboard to clear when plus bar is hit. The non-entry multiplier control should be down so that the number of revolutions will be added and read in the counter dial, and the change lever should be at X position.

Depress addends into the keyboard and add them in with the plus bar.

$$\begin{array}{r} 33 - \text{tap plus bar} \\ 38 - \text{tap plus bar} \\ 224 - \text{tap plus bar} \\ \underline{798} - \text{tap plus bar} \end{array}$$

1,093

Read the answer 1,093 (the sum or total) in the lower dial, the register dial as it is called. The counter dial, the upper dial, counts the number of subtraction and addition revolutions.

Now we will add numbers that contain decimals. Move the decimal indicators on the keyboard and register dial two decimal places to the left, and we will add:

Clear all dials and keyboard.

$$\begin{array}{r} \$ 4.79 - \text{tap plus bar} \\ 3.24 - \text{tap plus bar} \\ 7.91 - \text{tap plus bar} \\ \underline{19.47} - \text{tap plus bar} \end{array}$$

\$35.41

Read the sum \$35.41 in the register dial.

Now, let's add some numbers with more than two decimal places.

Suppose some figures have three decimals; some, two; some, four. Let's place our decimal point at a place that will accommodate the largest number of decimal places; that is four. Always do this when you have a varying amount of decimals.

1. Clear all dials and keyboard.
2. Enter addends around decimal points.

$$\begin{array}{r} 47.19 \\ 33.214 \\ 194.1 \\ \hline 1,643.0017 \\ 1,917.5057 \end{array}$$

Verification is obtained by getting the same answer twice since there is no printed tape to check.

Subtraction

To perform simple subtraction, move the carriage all the way to the left. Clear all dials and keyboard. Disengage repeat lever. The non-entry multiplier control should be down.

Move decimal markers.

Depress the minuend 145 into the keyboard and add it in with the plus bar. Then depress the subtrahend 50 into the keyboard and tap the minus bar. Read the answer in the register dial.

$$\begin{array}{r} 145 \\ -50 \\ \hline 95 \end{array}$$

Suppose you want to subtract 450 from 79. Clear keyboard and dials, depress the minuend (79) into the keyboard and add it into the machine with the plus bar; depress the subtrahend (450) into the keyboard and

subtract it by tapping the minus bar. Read the register dial. It reads:

999999999629

This is not the answer. These 9's indicate that a credit answer has been calculated. The 629 preceded by the 9's is the complement of the answer. A complement of a number is the difference between the number and the next higher power of 10, which in this case is 1,000.

To convert the complement into a credit balance:

1. Depress 629 on the keyboard and precede it by as many 9's as are in the keyboard's capacity.
2. Depress the repeat key.
3. Tap the minus bar twice.

The answer is 371. Be sure to indicate a credit balance with a minus sign or label them Cr. or credit.

$$\begin{array}{r} 79 \\ -450 \\ \hline \end{array}$$

371 Cr.

Caution: Be sure and disengage repeat key before working further problems.

Constants in Addition

A fixed figure that is added or subtracted again and again to different numbers (called variables) is called a constant.

Constant	+	Variable	=	Sum
7.40		15.25		22.65
7.40		17.95		25.35
7.40		21.30		28.70

To add constants:

1. Clear machine.
2. Set decimal markers.

3. Enter constant of 7.40 onto keyboard and depress plus bar.
4. Enter variable of 15.25 onto keyboard.
5. Engage repeat key.
6. Depress plus bar.
7. Record sum.
8. Depress minus bar to subtract variable that has been held in keyboard.
9. Clear keyboard.
10. Enter second variable into keyboard and depress plus bar.
11. Record sum.
12. Depress minus bar to subtract variable that has been held in keyboard.
13. Repeat for as many variables as you have.

Constants in Subtraction

Variable	-	Constant	=	Difference
75.45		17.50		57.95
35.00		17.50		17.50
54.17		17.50		36.67

To subtract constants:

1. Clear machine and disengage repeat key.
2. Enter constant into keyboard.
3. Depress minus bar.
4. Enter variable into keyboard.
5. Engage repeat key.
6. Depress plus bar.
7. Read and record difference.

270

8. Depress minus bar to subtract variable that has been held in keyboard.
9. Clear keyboard.
10. Enter second variable into keyboard.
11. Depress plus bar.
12. Read and record difference.
13. Depress minus bar to subtract variable that has been held in keyboard.
14. Repeat for as many variables as you have.

Multiplication

Multiplication can be automatic or semi-automatic. To perform semi-automatic multiplication:

1. Move the carriage all the way to the left by depressing the shift key with an arrow pointing in that direction and clear the keyboard and dials.
2. Non-entry multiplier control should be in down position, and change lever should be at X position.
3. Engage repeat key.

The problem is 1276×743 .

1. Depress the multiplicand (743) into the keyboard. Tap the plus bar six times (the first number on the right in the multiplier.) This will register in the counter dial.
2. Move the carriage one row position to the right by depressing the tab key pointing in that direction. Now tap the plus bar seven times. Notice that this number also registers in the counter dial.
3. Again move the carriage one row position to the right by depressing the tab pointing in that direction. Tap the plus bar two times. The two appears in the counter dial.
4. Again move the carriage one row position to the right by depressing the tab key. Tap the plus bar one time.

241²⁸

The product, 948,068, is shown in the register dial.

The multiplier, 1276, is shown in the counter dial.

The multiplicand is still depressed in the keyboard.

Note: Always punctuate your answers. 948,068 is much easier to read with a comma in it.

Automatic Multiplication

1. Clear keyboard and dials.
2. Move carriage to extreme left.
3. Non-entry multiplier control should be in down position.
4. Enter multiplicand 743 into keyboard.
5. Depress enter multiplicand key. (Notice that the multiplicand is shown in the multiplicand dial.)
6. Enter multiplier 1276 in the keyboard.
7. Depress clear multiplier.
8. Read the product 948,068 in the middle dial.
9. The multiplicand is now shown in the upper dial.

Since this calculator is automatic, let's multiply by this last method. I wanted to show you how to multiply by the first method in case you should have access to only a semi-automatic calculator.

Decimals in Multiplication

Suppose you wanted to multiply 5.25 by 3.

1. Depress multiplicand 5.25 into the keyboard.
2. Tap enter multiplicand key.
3. Depress multiplier into keyboard.
4. Tap clear multiplier key.

5. Notice that it was not necessary to clear the dials after the last operation because they are cleared automatically by the clear multiplier key.
6. Read the product 1,575 in the register dial. The number of places marked off is equal to the number of places in the multiplier plus the number of decimal places in the multiplicand. So, the answer is 15.75.

However, it is much easier to work around fixed decimals so that you will not have to add the number of decimals in the multiplier and in the multiplicand every time you work a problem.

Let me explain:

$$\begin{array}{r}
 19.45 \quad 17.304 = \\
 24.19 \quad 39.1643 = \\
 45.1076 \times 25.3071 =
 \end{array}$$

One of these problems will have 5 decimal places in the product; one, 6; and one, 8. Four is the largest number of decimals in any multiplier, so let's mark off four places in the counter dial by moving the decimal marker four places to the left. Four is also the largest number of decimals in any multiplicand, so let's mark off four places in the keyboard by uncovering the decimal marker four places to the left. Four decimals in the multiplier plus four decimals in multiplicand equals 8; so let's mark off 8 places in the register dial where the answer appears.

In other words, number of decimals in keyboard plus number of decimals in upper dial equals number of decimals in register dial.

1. Depress the multiplicand (17.304) into the keyboard around the decimals. It will appear to be 17.3040.
2. Tap the enter multiplicand key.
3. Depress the multiplier (19.45) into the keyboard around the decimals. It will appear to be 19.4500.
4. Tap the clear multiplier key.

5. Read the product in the register dial--336.56280000. Round all answers to 5 decimal places. In this case, however, the product will contain 4 decimal places, since we drop zeros.

Multiplying Three Factors

$$5.77 \times 7.4 \times 9.2$$

1. Multiply the first two factors as you normally would, and it is much easier and faster to continue to work around the fixed decimal program of 4-4-8.
2. Depress the first factor (5.77) into the keyboard around the decimals.
3. Tap enter multiplicand key.
4. Depress second factor (7.4) into the keyboard around the decimals.
5. Tap clear multiplier key.
6. Depress product of first operation (42.698) into the keyboard around the decimal.
7. Tap enter multiplicand key.
8. Multiply by third factor (9.2).
9. Read the product in the register dial (392.8216).

Accumulated Multiplication

Suppose you wanted the sum of:

$$\begin{array}{r} 6 \quad \times \quad 1.4 \\ 5 \quad \times \quad 15.7 \\ \hline 4.3 \quad \times \quad 8.7 \end{array}$$

You could find the product of each multiplication and add the three products together to get the sum. But on a rotary calculator, there is an easier way. Let's continue to work around the fixed decimal program of 4-4-8.

1. Clear dials and keyboards.
2. Accumulative multiplier lever in up position.
3. Depress the multiplicand (1.4) into the keyboard around the decimals.
4. Tap enter multiplicand key.
5. Depress the multiplier (6) into keyboard around the decimals.
6. Tap clear multiplier key.
7. Depress second multiplicand (15.7) into keyboard around the decimals.
8. Tap enter multiplicand key.
9. Depress the multiplier (5) into keyboard around the decimals.
10. Tap clear multiplier key.
11. Notice that the sum of the first two products (86.9) remains in the register dial.
12. Depress the third multiplicand (8.7) into the keyboard around the decimals.
13. Tap enter multiplicand key.
14. Depress multiplier (4.3) into keyboard around the decimals.
15. Tap clear multiplier key.
16. Read the answer in the register dial (124.31).
17. Accumulative multiply lever should be disengaged (down position).

Negative Multiplication

Negative multiplication is repeated subtraction, the same as positive multiplication is repeated addition. It is very helpful when net amounts are desired or when figuring chain discounts.

The negative multiply key can be used only when the carriage is in first position; that is, moved to extreme left.

1. Let's set a tab (much the same as setting a tab on a typewriter) so that the carriage will automatically stop in the right position; that is, tab number 5.
2. Move the carriage right by depressing the carriage shift key pointing in that direction. The decimal in the register dial will be over the decimal in the keyboard if the correct tab has been set.
3. Clear the keyboard and dials.

PROBLEM is \$150 less 25%, less 10%, less 5%.

4. Enter 150 on the keyboard around the decimals.
5. Engage the repeat key.
6. Tap plus bar. (This enters the amount in the register dial so that the percentage of discount can be subtracted from it.)
7. Tap enter multiplicand key.
8. Depress .25 into keyboard around decimals.
9. Depress negative multiplier key.
10. Depress product shown in the register dial (112.5) into the keyboard.
11. Tap enter multiplicand key.
12. Depress .1 onto the keyboard around decimals.
13. Tap negative multiplier key.
14. Depress product shown in the register dial (101.25) onto the keyboard.
15. Tap enter multiplicand key.
16. Depress .05 onto keyboard.

18. Tap negative multiplier key.
19. Read the answer in the register dial (96.1875 rounded off to 96.19).

Note: Only a decimal program of 4-4-8 will work for negative multiplication.

Division

The dividend can be depressed into the keyboard at three different places; at the extreme right of machine, at extreme left of machine, or around fixed decimals.

Division is best done around fixed decimal points so that quotients will be carried out as many decimal places as desired.

The number of decimals in the register dial minus the number of decimals in the keyboard equals the number of decimals in the counter dial where quotient is read.

The first step in dividing around fixed decimals is to decide on a program, using the formula just stated, such as

4 decimals in the keyboard		4 decimals in the keyboard
4 decimals in the counter dial	or	5 decimals in the counter dial
8 decimals in the register dial		9 decimals in the register dial

The problem is $126 \div 5$.

1. Set decimal places.
2. Set tab so that carriage will automatically stop in proper position.
3. Clear all dials and keyboard and move the carriage to the extreme left by depressing the shift key with the arrow pointing in that direction.
4. Enter dividend (126) on keyboard around decimals.
5. Depress enter dividend tab. If the tab has been set correctly, the decimal in the register dial will be above the decimal in the keyboard.

34
2.52

1.

6. Enter divisor (5) on keyboard around decimals.
7. Tap divide key.
8. Read quotient in counter dial--25.2.

To express a quotient as a whole number with a remainder, divide at the extreme right of the keyboard.

$$126 \div 5 =$$

1. Move carriage to extreme left by depressing the shift key with the arrow pointing in that direction.
2. Depress the dividend (126) into the keyboard at the extreme right.
3. Tap plus bar.
4. Clear upper dial.
5. Depress divisor into the keyboard with the first digit of the divisor aligned with the first digit of the dividend. This is done by moving the carriage.
6. Tap divide key.
7. The quotient (25) appears in the counter dial, with the remainder of 1 shown in the register dial.

Note: This is the only way to get an answer with a remainder; otherwise, the answer in the counter dial will show as many decimal places as the counter dial will accommodate.

To Divide at the Extreme Left of the Keyboard

1. Clear dials from previous operation and release tab set.
2. Move the carriage to extreme right by depressing the shift key with the arrow pointing in that direction.
3. Depress dividend (126) into extreme left of keyboard.
4. Tap enter dividend key.
5. Depress divisor into keyboard with first digit in divisor aligned with the first digit of dividend in register dial.

6. Depress divide key.
7. The quotient is 25.2 as read in counter dial.

Let's work the problem again, paying attention to the decimals.

1. Notice that you do not have to clear the dials because they clear automatically when dividend is entered with enter dividend key instead of plus bar.
2. Depress dividend (126) into keyboard at extreme left.
3. Tap enter dividend key. The "enter dividend" key clears counter dial and moves carriage to extreme right at the same time.
4. Notice the register dial; the 126 appears with 12 zeros after it. So we can assume these are decimal places. Move the decimal marker so that it reads 126.000000000000.
5. Next depress the divisor into the keyboard with the first digit in the divisor directly under the first digit in the dividend. There are 7 keys after the 5 of the keyboard, so we can assume, even though the zeros are not depressed, that the divisor is 5.0000000, or 7 decimal places. Uncover the decimal so that the keyboard reads 5.0000000. Subtract the number of decimal places in the divisor (7) from the number of decimal places in the dividend (12) to see how many places will appear in the quotient--5. Move the decimal marker in the upper dial 5 places from the right.
6. Tap divide key.
7. Read the answer in counter dial--25.2 (decimal point being 5 places from the right).

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the rotary calculator. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

FRIDEN ROTARY CALCULATOR
TAPE NO. 4

Script for Tape No. 4 to Accompany Film No. 4

The Friden rotary calculator has two dials.

The upper dial shows the product in multiplication, the dividend in division, and the sum in addition and the difference in subtraction.

The lower dial shows the multiplier in multiplication, the quotient in division after dividing, and the count of items in addition or subtraction.

As we go through the steps for addition, subtraction, multiplication and division, work the problems with me on the Friden automatic rotary calculator.

Addition is the simplest operation, so we shall begin with that.

Addition

The carriage should be all the way to the left, the normal position for adding. Depress the left shift key. It is the key with an arrow pointing to the left. The extreme right column is for units, the second column from the right for tens, the third column from the right for hundreds, etc.

You may clear all dials and the keyboard by simultaneously depressing the clear multiplier key, and the keyboard clear key. Always do this before you begin a problem to make sure the machine is clear. If numbers from a previous problem are in the machine, they will be added into your new problem. If you want to clear only the keyboard, depress the keyboard clear key.

The add key should be in down position.

Depress addends into the keyboard and add them in with the plus bar.

33 - tap plus bar
38 - tap plus bar
224 - tap plus bar
789 - tap plus bar

1,084

Read the answer 1,084 (the sum or total) in the upper dial. The lower dial counts the number of subtraction and addition revolutions.

Now we will add numbers that contain decimals. Expose the decimal indicator on the keyboard two decimal places from the right and move the decimal markers on the upper dial two places from the right.

Clear all dials and keyboard.

\$ 4.79 - tap plus bar
7.91 - tap plus bar
3.24 - tap plus bar
19.47 - tap plus bar

\$35.41

Read the sum 35.41 in the upper dial.

Now, let's add some numbers with more than two decimal places.

Suppose some figures have three decimals; some, two; some, four. Let's place our decimal points at a place that will accommodate the largest number of decimal places; that is, four. Always do this when you have a varying amount of decimals.

1. Clear all dials and keyboard.
2. Enter addends around decimal point.

48.19
33.214
194.1
1,643.0017

1,918.5057

³⁸
231

Verification is obtained by getting the same answer twice since there is no printed tape to check.

Subtraction

To perform simple subtraction, move the carriage all the way to the left. Clear all dials and the keyboard.

Move decimal markers.

Depress the minuend 145 into the keyboard and add it in with the plus bar. Then depress the subtrahend 50 into the keyboard and tap the minus bar. Read the answer 95 in the upper dial.

$$\begin{array}{r} 145 \\ -50 \\ \hline \end{array}$$

95

Suppose you want to subtract 450 from 79, clear keyboard and dials, depress the minuend (79) into the keyboard and add it into the machine with the plus bar. Depress the subtrahend (450) into the keyboard and subtract it by tapping the minus bar. Read the answer in the upper dial. It reads:

9999999999629

This is not the answer. These 9's indicate that a credit answer has been calculated. The 629 preceded by the 9's is the complement of the answer. A complement of a number is the difference between the number and the next higher power of 10, which in this case is 1,000.

To convert the complement into a credit balance:

1. Depress 629 on the keyboard and precede it by as many 9's as are in the keyboard's capacity.
2. Add key up.
3. Then tap the minus bar twice.

The answer is 371. Be sure to indicate a credit balance with a minus sign or label them Cr. or credit.

$$\begin{array}{r} 79 \\ -450 \\ \hline 371 \text{ Cr.} \end{array}$$

Constants in Addition

A fixed figure that is added or subtracted again and again to different numbers (called variables) is called a constant:

Constant	+	Variable	=	Sum
7.40		15.25		22.65
7.40		17.95		25.35
7.40		21.30		28.70

To add constants:

1. Clear machine (add key up).
2. Set decimal markers.
3. Enter constant of 7.40 onto keyboard and depress plus bar quickly and release. If you do not release the plus bar right away, it will over add.
4. Clear keyboard.
5. Enter variable of 15.25 onto keyboard and tap plus bar.
6. Record sum (22.65).
7. Depress minus bar to subtract variable that has been held in the keyboard.
8. Constant reappears in upper dial.
9. Clear keyboard. Enter second variable (17.95) into keyboard and depress plus bar.
10. Record sum (25.35).
11. Depress minus bar to subtract variable that has been held in the keyboard.
12. Repeat for as many variables as you have.

Constants in Subtraction

Variable	-	Constant	= Difference
75.45		17.50	57.95
35.00		17.50	17.50
54.17		17.50	36.67

To subtract constants:

1. Clear machine.
2. Add key up. Enter constant (17.50) into keyboard.
3. Depress minus bar.
4. Clear keyboard. Enter variable (75.45) into keyboard.
5. Depress add bar.
6. Read and record difference (57.95).
7. Depress minus bar to subtract variable that has been held in keyboard.
8. Clear keyboard. Enter second variable (35.00) into keyboard.
9. Depress add bar.
10. Read and record difference (17.50).
11. Depress minus bar to subtract variable that has been held in keyboard.
12. Repeat for as many variables as you have.

Multiplication

Multiplication is automatic.

The problem is 1276×743 .

1. Clear machine.
2. Depress the multiplicand (743) into the keyboard.
3. Add key down. Enter the multiplier (1276) as it is read from left to right in the multiplier keyboard. It is now read in the multiplier dial.

41
257



4. Depress clear multiplier key.

The product, 948,068, is shown in the upper dial.

The multiplier, 1276, is shown in the middle dial.

NOTE: Always punctuate your answer 948,068 is much easier to read with a comma in it.

Decimals in Multiplication

Suppose you wanted to multiply 12.25 by 3.

There is a very easy way to set decimals on the Friden rotary calculator.

1. Set keyboard dial decimal pointer for number of decimals in the multiplicand; in this problem, 2.
2. Set decimals in multiplier dial for number of decimals in multiplier; in this problem, 0.
3. Set upper dial decimal on two - the number of decimals in the multiplier plus the number of decimals in the multiplicand.
4. Carriage at the extreme left.
5. Depress multiplicand (12.25) into the keyboard around decimals.
Enter multiplier (3) in the automatic multiplier keyboard.

Depress clear multiply. Read the product (36.75) in the upper dial.

It is not necessary to clear the upper and lower dials before the next operation, because the clear multiply key clears and multiplies at the same time.

However, it is much easier to work around fixed decimals so that you will not have to add the number of decimals in the multiplier and in the multiplicand every time you work a problem.

Let me explain:

$$\begin{array}{r} 19.45 \quad \times \quad 17.304 = \\ 24 \ 19 \quad \times \quad 39,1643 = \\ 45 \ 1076 \times \quad 25.3071 = \end{array}$$

One of these problems will have 5 decimal places in the product; one, 6; and one, 8. Four is the largest number of decimals in any multiplicand, so let's mark off four places in the keyboard by uncovering the decimal marker four places to the left. Four is also the largest number of decimals in the multiplier, so let's mark off four places in the lower dial where the multiplier appears and in the multiplier keyboard. Four decimals in the multiplier and four decimals in the multiplicand equals 8, so let's mark off 8 places in the upper dial where the answer appears.

In other words, number of decimals in keyboard plus number of decimals in multiplier dial equals number of decimals in upper dial.

1. Depress the multiplicand (17.304) into the keyboard around the decimals. It will appear to be 17.3040.
2. Depress the multiplier (19.45) into the multiplier keyboard. It will be necessary to depress the zero key twice to position the multiplier around the decimals.
3. Depress clear multiply key.
4. Read the product in the upper dial--336.56280000. Round all answers to 5 decimal places. In this case, however, the product will contain 4 decimal places, since we drop the zeros. Notice that the multiplier has been transferred to the lower dial.

Multiplying Three Factors

$$5.77 \times 7.4 \times 9.2$$

1. Multiply the first two factors as you normally would, and it is much easier and faster to continue to work around the fixed decimal program of 4-4-8.

2. Depress the first factor (5.77) into keyboard around the decimals
3. Depress second factor (7.4) into multiplier keyboard around the decimals.
4. Depress clear multiply key.
5. Depress product of first operation (42.698) into the keyboard around the decimal.
6. Depress third factor (9.2) into multiplier keyboard around the decimals.
7. Depress clear multiply key.
8. Read the product in the upper dial (392.8216).

Accumulated Multiplication

Suppose you wanted the sum of:

$$\begin{array}{r}
 6 \quad x \quad 1.4 \\
 5 \quad x \quad 15.7 \\
 \hline
 4.3 \quad x \quad 8.7
 \end{array}$$

You could find the product of each multiplication and add the three products together to get the sum. But on a rotary calculator, there is an easier way. Just omit clearance of the upper dial between multiplications. Let's continue to work around the fixed decimal program of 4-4-8.

1. Depress the multiplicand (1.4) into the keyboard around the decimal.
2. Depress the multiplier (6) into multiplier keyboard around decimals.
3. Depress clear multiply key.
4. Engage the upper dial lock.
5. Depress second multiplicand (15.7) into keyboard.

6. Depress the multiplier (5) into multiplier keyboard around decimals.
7. Depress clear multiply key.
8. Notice that the sum of the first two products (86.9) remains in the upper dial.
9. Depress the third multiplicand (8.7) into the keyboard around the decimals.
10. Depress multiplier (4.3) into multiplier keyboard around the decimals.
11. Depress clear multiply key.
12. Read the answer in the upper dial (124.31), and disengage the upper dial lock.

Negative Multiplication

Negative multiplication is repeated subtraction, the same as positive multiplication is repeated addition. It is very helpful when net amounts are desired or when figuring chain discounts.

\$150 less 20%, less 10%, less 5%

1. Add key down.
2. Enter 150 on the keyboard around the decimals set for previous problems.
3. Multiply by 1.
4. Position the operation indicator on minus.
5. Enter 150 on the keyboard around the decimals.
6. Depress .20 into multiplier keyboard around decimals.
7. Depress clear multiply key.
8. Depress product shown in upper dial (120.00) onto the keyboard around decimals.
9. Depress .1 into the multiplier keyboard around decimals.

10. Position the operation indicator on minus.
11. Depress clear multiply key.
12. Depress product shown in upper dial (108.00) onto the keyboard around decimals.
13. Position the operation indicator on minus.
14. Depress (.05) onto multiplier keyboard around decimals.
15. Depress clear multiply key.
16. Read the product in the upper dial (102.60).

Division

The dividend can be depressed into the keyboard at three different places: at the extreme right of the machine, at the extreme left of the machine, or around fixed decimals.

Division is best done around fixed decimal points so that quotients will be carried out as many decimal places as desired.

The number of decimals in the upper dial minus the number of decimals in the keyboard equals the number of decimals in lower dials where quotient is read.

Dividing around decimals is very easy on the Friden rotary calculator.

Simply set tab key, which is similar to setting tab key on a typewriter, for number of decimal points you want in quotient, allowing one extra one for rounding off. If you want five decimal places, set tab on six.

Set keyboard decimal on 5 to accommodate both divisor and dividend.

Set upper dial decimal on 11.

Set lower dial decimal on 6 (11 minus 5 equals 6.)

The problem is $126 \div 5$.

1. Enter dividend (126) on keyboard around decimals.
2. Tap enter dividend key.
3. Enter divisor (5) onto keyboard around decimals.
4. Tap both divide keys simultaneously.
5. Read quotient (25 25) in lower dial.

Notice that carriage returned automatically to correct position to read decimal in quotient and to work next problem. It is not necessary to clear lower dial before working next problem.

To express a quotient as a whole number with a remainder, divide at the extreme right

$$(126 \div 5) =$$

1. Move carriage to extreme left.
2. Depress the dividend (126) into the keyboard at the extreme right
3. Tap plus bar.
4. Clear lower dial.
5. Depress divisor (5) into the keyboard with the first digit of the divisor aligned with the first digit of the dividend. This is done by moving the carriage right.
6. Tap both divide keys simultaneously.
7. The quotient (25) appears in the lower dial, with the remainder of 1 shown in the upper dial.

Note: This is the only way to get an answer with a remainder; otherwise, the answer in the upper dial will show as many decimal places as the upper dial will accommodate.

Divide at the Extreme Left

1. Set tab stop on 8
2. Move the carriage to extreme right.
3. Depress dividend (126) into extreme left of keyboard.
4. Tap enter dividend key.
5. Depress divisor (5) into keyboard with first digit in divisor aligned with the first digit of dividend in upper dial.
6. Depress both divide keys simultaneously.
7. The quotient is 25.2 as read in the lower dial.

Let's work the problem again, paying attention to the decimals.

1. Notice that 1 will not clear dials because they clear automatically when dividend is entered with enter dividend key.
2. Depress dividend (126) into keyboard at extreme left.
3. Tap enter dividend key. The "enter dividend" key clears upper dial.
4. Notice the upper dial; the 126 appears with 15 zeros after it, so we can assume these are decimal places. Move the decimal marker after the 126 in the upper dial.
5. Next depress the divisor into the keyboard with the first digit in divisor directly under the first digit in dividend. There are 9 keys after 5 on the keyboard, so we can assume, even though the zeros are not depressed, that the divisor is 5.00000000, or 9 decimal places. Move the keyboard decimal marker to the position after the 5. Subtract the number of decimal places in the divisor (9) from the number of decimal places in the dividend (15) to see how many decimal places will appear in the quotient--6. Move the decimal marker 6 places from the right in the lower dial where the quotient will appear.
6. Tap both divide keys simultaneously.
7. Read the answer in lower dial--25.2 (decimal point being 6 places from the right).

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the rotary calculator. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

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MERCHANT ROTARY CALCULATOR
TAPE NO. 5

Script for Tape No. 5 to Accompany Film No. 5

The Marchant rotary calculator has three dials:

The upper dial shows the multiplier in multiplication, the quotient in division, and the count of items in addition or subtraction.

The middle dial shows the answer in addition, subtraction, and multiplication; the dividend in division before dividing; and the remainder in division after dividing.

The keyboard dial shows in a straight line every figure entered in the keyboard.

As we go through the steps for addition, subtraction, multiplication, and division, work the problems with me on the Marchant automatic rotary calculator.

Addition is the simplest operation, so we shall begin with that.

Addition

The carriage should be all the way to the left, the normal position for adding. Depress the left shift key. It is the key with an arrow pointing to the left. The extreme right column is for units, the second column from the right for tens, and the third column from the right for hundreds, etc.

You may clear all dials and keyboard by simultaneously depressing the upper dial clear key, the middle dial clear key, and the keyboard clear key. Always do this before you begin a problem to make sure the

machine is clear. If numbers from the previous problem are in the machine, they will be added into your new problem. If you want to clear only the keyboard, depress the keyboard clear key. If you want to clear only the upper dial, depress the upper dial clear key.

If you want to clear only the middle dial, depress the middle dial clear key. Upper dial control on plus (+).

Depress addends into the keyboard and add them in with the plus bar.

33 - tap plus bar
38 - tap plus bar
224 - tap plus bar
798 - tap plus bar

1,093

Read the answer 1,093 (the sum or total) in the middle dial. The upper dial counts the number of subtraction and addition revolutions.

Now we will add numbers that contain decimals. Move the keyboard dial decimal pointer two decimal places to the left, and position the orange middle dial quick-set decimal at "+."

Clear all dials and keyboard.

\$ 4.79 - tap plus bar
3.24 - tap plus bar
7.91 - tap plus bar
19.47 - tap plus bar

\$35.41

Read the sum 35.41 in the middle dial .

Now, let's add some numbers with more than two decimal places. Suppose some figures have three decimals; some, two; some, four. Let's place our decimal point at a place that will accommodate the largest number of decimal places; that is, four. Always do this when you have a varying amount of decimals.

264

52

1. Clear all dials and keyboard.
2. Enter addends around decimal points.

$$\begin{array}{r}
 47.19 \\
 33.214 \\
 194.1 \\
 \hline
 1,643.0017
 \end{array}$$

1,917.5057

Verification is obtained by getting the same answer twice since there is no printed tape to check.

Subtraction

To perform simple subtraction, move the carriage all the way to the left. Clear all dials and the keyboard.

Move decimal markers.

Depress the minuend 145 into the keyboard and add it in with the plus bar. Then depress the subtrahend 50 into the keyboard and tap the minus bar. Read the answer in the middle dial.

$$\begin{array}{r}
 145 \\
 -50 \\
 \hline
 \end{array}$$

95

Suppose you want to subtract 450 from 79, clear keyboard and dials; depress the minuend (79) into the keyboard and add it into the the machine with the plus bar; depress the subtrahend (450) into the keyboard and subtract it by tapping the minus bar. Read the answer in the middle dial. It reads:

999999999629

This is not the answer. These 9's indicate that a credit answer has been calculated. The 629 preceded by the 9's is the complement of

the answer. A complement of a number is the difference between the number and the next higher power of 10, which in this case is 1,000.

To convert the complement into a credit balance:

1. Depress 629 on the keyboard and precede it by as many 9's as are in the keyboard's capacity.
2. Depress the middle dial clear key.
3. Then tap the minus bar.

The answer is 371. Be sure to indicate a credit balance with a minus sign or label them Cr. or credit.

$$\begin{array}{r} 79 \\ -450 \\ \hline \end{array}$$

371 Cr.

Constants in Addition

A fixed figure that is added or subtracted again and again to different numbers (called variables) is called a constant.

Constant	+	Variable	=	Sum
7.40		15.25		22.65
7.40		17.95		25.35
7.40		21.30		28.70

To add constants:

1. Clear machine.
2. Set decimal markers.
3. Enter constant of 7.40 onto keyboard and depress + key.
4. Enter variable of 15.25 onto keyboard.
5. Depress multiplier key "1."
6. Record sum (22.65).

7. Depress minus bar to subtract variable that has been held in keyboard.
8. Constant reappears in middle dial.
9. Enter second variable (17.95) into keyboard and depress multiplier key "1."
10. Record sum (25.35).
11. Depress minus bar to subtract variable that has been held in keyboard.
12. Repeat for as many variables as you have.

Constants in Subtraction

Variable	-	Constant	=	Difference
75.45		17.50		57.95
35.00		17.50		17.50
54.17		17.50		36.67

To Subtract Constants

1. Clear machine.
2. Enter constant (17.50) into keyboard.
3. Depress minus bar.
4. Enter variable (75.45) into keyboard.
5. Depress multiplier key "1."
6. Read and record difference (57.95).
7. Depress minus bar to subtract variable that has been held in keyboard.
8. Enter second variable (35.00) into keyboard.
9. Depress multiplier key "1."
10. Read and record difference (17.50).

11. Depress minus bar to subtract variable that has been held in keyboard.
12. Repeat for as many variables as you have.

Multiplication

Multiplication is automatic.

The problem is 1276×743 .

1. Depress the multiplicand (743) into the keyboard.
2. Move the carriage four row positions to the right by depressing the tab key pointing in that direction. Notice the red arrow over the fourth row in the upper dial. This is where the multiplier will appear. Now enter the multiplier as it is read from left to right in the automatic multiplier keyboard.

The product 948,068 is shown in the middle dial.

The multiplier, 1276, is shown in the upper dial.

The multiplicand, 743, is shown in the keyboard dial. Multiplication is the only operation after which the keyboard does not clear automatically.

You can see that it is not necessary to work the problem a second time for verification since the multiplicand in the keyboard dial and the multiplier in the upper dial provide good proof of correct entry.

NOTE: Always punctuate your answers. 948,068 is much easier to read with a comma in it.

Decimals in Multiplication

Suppose you wanted to multiply 5.25 by 3.

There is a very easy way to set decimals on the Marchant rotary calculator.

1. Set keyboard dial decimal pointer for number of decimals in the multiplicand. In this problem--2.

2. Set upper orange decimal for number of decimals in multiplier--zero in this problem.
3. Set middle dial decimal over the same number as shown in the upper dial decimal
4. Carriage at extreme right.
5. Depress multiplicand (5.25) into the keyboard around decimals.
6. Enter the multiplier 3 in the automatic multiplier keyboard.
7. Read the product (15.75) in the middle dial.

To get ready for next multiplication, simultaneously depress the keyboard clear key, the middle dial clear key, the upper dial clear key, and the carriage return key.

However, it is much easier to work around fixed decimals so that you will not have to add the number of decimals in the multiplier and in the multiplicand every time you work a problem.

Let me explain.

$$19.45 \times 17.304 =$$

$$24.19 \times 39.1643 =$$

$$45.1076 \times 25.3071 =$$

One of these problems will have five decimal places in the product; one, 6; and one, 8. Four is the largest number of decimals in any multiplicand, so let's mark off four places in the keyboard by moving the decimal marker four places to the left. Four is also the largest number of decimals in any multiplier, so let's mark off four places in the upper dial where the multiplier appears. But, this time we will use black slide-set decimals. Four decimals in the multiplier plus four decimals in the multiplicand equals 8, so let's mark off 8 places in the middle dial where the answer appears, also using the black slide-set decimals.

In other words, the number of decimals in keyboard plus number of decimals in upper dial equals number of decimals in middle dial.

1. Depress the multiplicand (17.304) into the keyboard around the decimals. It will appear to be 17.3040.
2. Move the carriage to the right until the red arrow over the upper dial, called the active dial indicator, is in position to register multiplier around the decimals.
3. Depress the multiplier (19.45) into the automatic multiplier keyboard.
4. Read the product in the middle dial--336.56280000. Round all answers to 5 decimal places. In this case, however, the product will contain 4 decimal places, since we drop the zeros

Multiplying Three Factors

$$5.77 \times 7.4 \times 9.2$$

1. Multiply the first two factors as you normally would, and it is much easier and faster to work around fixed decimals.
2. Clear the keyboard and dials from the previous problem.
3. Depress the first factor (5.77) into keyboard.
4. Depress second factor (7.4) into automatic multiplier keyboard.
5. Clear keyboard.
6. Depress product of first operation (42.698) into the keyboard.
7. Clear upper and middle dials and reposition carriage to multiply around decimals.
8. Multiply by third factor (9.2).
9. Read the product in the register dial (392.8216).

Accumulated Multiplication

Suppose you wanted the sum of:

$$\begin{array}{r} 6 \quad x \quad 1.4 \\ 5 \quad x \quad 15.7 \\ \hline 4.3 \quad x \quad 8.7 \end{array}$$

You could find the product of each multiplication and add the three products together to get the sum. But on a rotary calculator, there is an easier way. Just omit clearance of the middle dial between multiplications. Let's continue working around the fixed decimal program of 4-4-8.

1. Clear dials and keyboard.
2. Depress the multiplicand (1.4) into the keyboard around decimals.
3. Depress the multiplier (6) into automatic multiplier keyboard around decimals.
4. Clear keyboard and upper dial, leaving the product of the first multiplication in the middle dial.
5. Depress second multiplicand into keyboard around the decimals.
6. Depress the multiplier (5) into automatic multiplier keyboard around decimals.
7. Clear keyboard and upper dial.
8. Notice that the sum of the first two products (86.9) remains in the middle dial.
9. Depress the third multiplicand (8.7) into the keyboard around the decimals.
10. Depress multiplier (4.3) into automatic multiplier keyboard around decimals.
11. Read the answer in the middle dial (124.31).

Negative Multiplication

Negative multiplication is repeated subtraction, the same as positive multiplication is repeated addition. It is very helpful when net amounts are desired or when figuring chain discounts.

1. Let's set a tab (much the same as setting a tab on a typewriter) so that the carriage will automatically stop in the right position; that is, tab number 4.
2. Move the carriage right by depressing the carriage shift key pointing in that direction.
3. Clear the keyboard and dials.

Problem is \$150 less 25%, less 10%, less 5%.

4. Enter 150 on the keyboard around the decimals.
5. Multiply by 1 (notice you will have to backspace one space).
6. Depress Re. Neg. X key.
7. Upper dial control on minus (-). Depress .25 into automatic multiplier keyboard around decimals.
8. Clear keyboard and upper dial.
9. Depress product shown in the middle dial (112.5) onto the keyboard around the decimals.
10. Depress .1 into the automatic multiplier keyboard around decimals.
11. Clear keyboard and upper dial.
12. Depress product shown in the middle dial (101.25) onto the keyboard around the decimals.
13. Depress .05 onto automatic multiplier keyboard around decimals.
14. Read the answer in the middle dial (96.1875) rounded off to 96.19. Disengage Re. Neg. X key by depressing the stop key or the carriage return key.

6072



Division

The dividend can be depressed into the keyboard at three different places; at the extreme right of machine, at extreme left of machine, or around fixed decimals.

Division is best done around fixed decimal points so that quotients will be carried out as many decimal places as desired.

The number of decimals in the middle dial minus the number of decimals in the keyboard equals the number of decimals in upper dial where quotient is read.

Dividing around decimals is very easy on the Marchant rotary calculator.

Simply set tab for number of decimal points you want in quotient, allowing one extra one for rounding off. If you want five places, set tab on six.

Set keyboard decimal to accommodate both divisor and dividend; say, 5 places. Set the upper orange decimal on $\frac{1}{2}$. Position the magic window middle dial on "+."

The problem is $126 \div 5$.

1. Upper dial control on plus (+). Depress carriage return and clear all dials and keyboard with one stroke.
2. Enter dividend (126) on keyboard around decimals.
3. Tap dividend plus (+) key.
4. Enter divisor (5) onto keyboard around decimals. Tap divide key.
5. Read quotient (25.2) in upper dial.

Notice that carriage returned automatically to the correct position to read decimal in quotient and to work next problem. It is not necessary to clear upper dial before working the next problem because the dividend plus key will clear it automatically.

To express a quotient as a whole number with a remainder, divide at the extreme right of the keyboard.

The problem is $126 \div 5$.

1. Move carriage to extreme left.
2. Position division clear key away from you so the blue color shows.
3. Depress the dividend (126) into the keyboard at the extreme right.
4. Tap dividend plus key.
5. Depress divisor (5) into the keyboard with the first digit of the divisor aligned with the first digit of the dividend. This is done by moving the carriage right.
6. Tap divide key.
7. The quotient (25) appears in the upper dial, with the remainder of 1 shown in the middle dial.

Note: This is the only way to get an answer with a remainder; otherwise, the answer in the upper dial will show as many decimal places as the upper dial will accommodate.

Divide at the Extreme Left of the Keyboard

1. Clear tab by depressing the highest number tab (10).
2. Move the carriage to extreme right. Clear dials from previous operation.
3. Return the division clear key to normal position. Depress dividend (126) into extreme left of keyboard.
4. Tap dividend plus key.
5. Depress divisor (5) into keyboard with first digit in divisor aligned with the first digit of dividend in middle dial

6. Depress divide key.
7. The quotient is 25.2 as read in the upper dial.

Let's work the problem again, paying attention to the decimals.

1. Depress dividend (126) into keyboard at extreme left.
2. Tap dividend plus key.
3. Notice the middle dial; the 126 appears with 16 zeros after it, so we can assume these are decimal places. Uncover the black slide-set decimal after the 126 in the middle dial.
4. Next depress the divisor into the keyboard with the first digit in the divisor directly under the first digit in the dividend. There are 9 keys after the 5 on the keyboard, so the divisor is 5.00000000, or 9 decimal places. Move the keyboard decimal pointer to the position after the 5. Subtract the number of decimal places in the divisor (9) from the number of decimal places in the dividend (16) to see how many places will appear in the quotient--7. Uncover the black slide-set decimal 7 places from the right in the upper dial.
5. Tap divide key.
6. Read the answer in upper dial--25.2 (decimal point being 7 places from the right).

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the rotary calculator. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

OLIVETTI-UNDERWOOD TEN-KEY PRINTING CALCULATOR
TAPE NO. 6

Script for Tape No. 6 to Accompany Film No. 6

The ten-key printing calculator is a combination of the ten-key adding machine and the rotary calculator.

1. This machine automatically adds, subtracts, multiplies, and divides.
2. It has a credit balance feature that provides for true negative totals.
3. It has a printed tape which shows proof of all calculations.
4. It has 10 keys (actually 12 because it has three zero keys, one for one zero, one for two zeros, and one for three zeros).
5. The middle row of keys--the 4,5, and 6--is the home row. These keys have a rounded, indented surface, and the other keys have a flat surface. The index finger controls the 7, 4, and 1. The middle finger controls the 8, 5, and 2, and the ring finger controls the 9, 6, and 3. The operational keys on the left are controlled by the index finger and the operational keys on the right by the little finger.

In this film you will be shown how to work each type of problem that you will be working in your workbook, with the exception of problems involving percentage of increase and decrease, which is explained on page 48 of the workbook. You will be shown proper finger techniques. You have your calculator in front of you, and I suggest that you work these problems with me.

Let's begin with simple addition.

1. First, total the machine, using the little finger to depress the "T" bar. Always do this before any calculation, because any numbers previously entered into the machine will alter your answer. Notice the "T" on your tape. This indicates that the machine is clear.

It is very important that you develop the touch control at the very beginning of your instruction. The beginning exercises in your workbook will be designed to help you master touch control.

2. Place your index, middle and ring finger on the 4, 5, and 6. The add bar "D" is depressed with the little finger. There is a second add bar that may be depressed with the thumb. This auxiliary bar is provided to facilitate long series of addition.
3. To set a number on the machine, read the number from left to right. For example, we will add 45 and 56 = 101. Depress the four and the five--then tap the plus bar; depress the five and the six--then depress the plus bar. Depress the total bar and read the sum on the tape.

Let's work another addition problem. This time notice the column indicator. This column indicator serves three purposes.

1. It shows how many digits have been entered.
2. It divides digits into groups of three.
3. It shows whether or not the machine is holding a negative balance, and we will talk more about this feature later.

STEP ONE: Total. 7,898,456,123
 + 7,418,529
 7,905,874,652

STEP TWO: Enter augend 7,898,456,123 in keyboard (notice column indicator; it shows that we have depressed 10 digits).

STEP THREE: Tap plus bar.

STEP FOUR: Enter addend (7,418,529) into keyboard.

STEP FIVE: Tap plus bar.

STEP SIX: Total.

STEP SEVEN: Look at the paper tape to prove the correctness of the operation.

Notice + symbol printed on the tape. An appropriate symbol is printed for all operations--division, subtraction and multiplication.

Notice that the tape prints no decimals or commas. The decimal indicator, which is four sliding metal prongs, separates whole numbers on the tape from decimals and divides whole numbers into groups of three for easy reading.

Let's get a subtotal and number the next problem 34 with the non-add key. Depression of the non-add key will enter the desired digit or digits on the tape, but the number will not be added into the answer.

Problem No. 34	15
	17
	<u>18</u>
ST	50
	45
	<u>67</u>
	162

1. Clear machine by depressing the "T" key.
2. Enter the number 34 by depressing the 3 and 4.
3. Tap the non-add key.
4. Depress augend (15) into keyboard.
5. Hit plus bar.
6. Depress the addend (17) into the keyboard.
7. Hit plus bar.
8. Depress the addend (18) into keyboard.
9. Hit plus bar.
10. At this point to get a subtotal depress the ST bar.
11. Read the subtotal (50) on the paper tape.

12. Depress the 4th addend (45) into keyboard.
13. Hit plus bar.
14. Depress the 5th addend (67) into keyboard.
15. Hit plus bar.
16. Total (162).

To subtract, follow the addition steps except tap the minus (-) bar instead of the plus bar for the subtrahend.

1. Clear machine by depressing the "T" key.
2. Enter minuend (65) into keyboard.
3. Hit plus bar.
4. Enter subtrahend (35) into keyboard.
5. Hit minus bar.
6. Total.
7. Read remainder (30) on the tape.

65
<u>-35</u>
30

Credit Balance

Let's subtract 65 from 30.

1. Total the machine.
2. Depress minuend (30) into the keyboard.
3. Tap plus bar.
4. Depress subtrahend (65) into the keyboard.
5. Tap minus bar.
6. Notice the white marker in the column indicator. This shows that the machine is holding a negative balance.
7. Total.

8. Also notice that the difference is shown on the tape with a C sign beside it to indicate a credit balance.

There are several ways to correct a mistake.

1. If you want to change the last digit or digits of a keyboard entry, simply hit the backspace key. For example, suppose 455 were depressed, and 456 should have been depressed. Notice the 3 in the column indicator. Tap the backspace key. Now, notice the 2 in the column indicator, which shows that only two digits have been entered. Now depress the correct digit--the 6.
2. To clear all the digits that have been depressed, depress the clear key. For example, suppose 544 were depressed, and 455 should have been depressed. Notice the 3 in the column indicator. Depress the clear key, and all three digits are cleared. Notice the column indicator. Now depress correct entry--455.
3. If a number has been entered on keyboard and added into the machine, the same number can be entered on the keyboard and subtracted.
4. Likewise, an incorrect number that has been subtracted can be added into the machine.

The Repeat Lever

On occasion, you might wish to add the same number several times.

In this case, engage the repeat lever to lock the number into the keyboard.

$$\begin{array}{r} 7.95 \\ 3.22 \\ 3.22 \\ 3.22 \\ 3.22 \\ \hline 3.22 \end{array}$$

20.83

1. Total.
2. Enter 7.95 with plus bar.
3. Engage repeat key.
4. Depress 3.22 into keyboard and tap plus bar 4 times.

The repeat lever key automatically returns to its normal position when the total or subtotal key is depressed. If you do not want the keyboard to clear, hold repeat key in engaged position while you total or subtotal.

If you want to add other figures before you total, depress keyboard clear key and disengage repeat key.

Automatic Date Key

The date is set by positioning the four special print wheels with a stylus or pencil. It prints automatically and simultaneously with any operation when the date key is depressed.

$$45 + 45 = 90$$

Multiplication

Factors are entered into the keyboard as they are written. The total is obtained automatically when automatic total lever is engaged and when automatic subtotal lever is disengaged (up position).

$$24 \times 75 = 1800$$

Depress 24 into keyboard.

Depress the multiplier entry key x (sometimes called times key).

Depress 75 into keyboard.

Depress the equal multiplication key (=). It is a blue key.

If the automatic total lever were disengaged, the total would not print until the total key is depressed.

Automatic Subtotal Lever

A subtotal in multiplication will print automatically when the automatic subtotal lever is on (down position). This permits the accumulation of products. For example, in this problem

$$\begin{array}{r} 75 \times 94 \\ 81 \times 124 \\ 42 \times 305 \\ \underline{19 \times 728} \\ 43,736 \end{array}$$

---Return automatic subtotal to off position.

With the automatic subtotal on (in down position) multiply the first three parts of the problem. Before the final operation, return automatic subtotal lever to off position.

Notice subtotals on tape after every multiplication operation. Accumulated multiplication is possible without subtotals when automatic subtotal and the automatic total are in off position.

Multiplication of Decimals

Decimal places are pointed off the same as in paper-and-pencil multiplication; that is, the sum of the decimal places in the multiplier and the multiplicand is pointed off in the product.

For example: $17.95 \times 3.5 = 62.825$

$$2 + 1 = 3 \text{ decimal places}$$

When decimals occur in accumulative multiplication, the same number of decimal places in each multiplication must be maintained. This can be done by adding zeros to either the multiplier or multiplicand.

$$\begin{array}{r}
 4.75 \quad x \quad 4.25 \\
 1.5 \quad x \quad 15.21 \\
 75. \quad x \quad 4.5 \\
 \hline
 .15 \quad x \quad 20. \\
 \hline
 383.5025
 \end{array}$$

The largest number of decimal places in the product of the individual multiplications will be four (4.75 x 4.25), so let's mark off four decimal places with the movable decimal indicator.

Remember to put automatic total and automatic subtotal levers in off position.

Depress 475 into keyboard.

Depress times key (x).

Depress 425.

Depress equal multiplication key (=).

Depress 150 into keyboard to maintain four decimal places.

Depress times key (x).

Depress 1521 into the keyboard.

Depress equal multiplication key (=).

Depress 75000 into keyboard to maintain four decimal places.

Depress times key (x).

Depress 45 into keyboard.

Depress equal multiplication key (=).

Return automatic total to on position.

Depress 1500 into keyboard to maintain four decimal places.

Depress times key (x).

Depress 20 into keyboard.

Depress equal multiplication key (=).

Notice that the answer shows only the total of the products. We could have gotten subtotals after each operation if we had engaged the subtotal key.

Multiply Three of More Factors

$$15 \times 75 \times 105 = 118,125$$

1. Clear machine (automatic total on; automatic subtotal off--up position).
2. Set first factor (15) into keyboard.
3. Depress x key.
4. Set second factor (75) into keyboard.
5. Depress TR key. (This is an automatic product transfer key.)
6. Set third factor (105) into keyboard.
7. Depress = key.

Constant Factor in Multiplication

A memory feature of this machine automatically retains a constant factor in multiplication. In this example, 250 is the constant multiplier.

$$250 \times 175 = 43,750$$

$$250 \times 325 = 81,250$$

$$250 \times 495 = 123,750$$

1. Automatic total lever on.
2. Automatic subtotal lever off.
3. Clear machine by depressing T key.
4. Depress 250 into keyboard.

5. Depress x key.
6. Depress 175 into keyboard.
7. Depress = key.
8. Depress 325 into keyboard.
9. Depress = key.
10. Depress 495 into keyboard.
11. Depress = key.

If you wish to verify constant multiplier, depress mem out key and non-add key in succession.

This is one of the several ways to store a number in the memory device. The multiplier 250, which is verified on the tape, will stay in the memory device until a new number is entered and automatically clears out the previous number.

Division

Division is automatic, and factors are entered as they are read.

In the problem $175 \div 25 = 7$

1. Automatic total on.
2. Automatic subtotal off.
3. Enter 175 into keyboard.
4. Depress D+ key to enter dividend.
5. Enter 25 into keyboard.
6. Depress divide equals key \div .
7. The answer is 7.

In the problem $177 \div 25 = 7 \frac{2}{25}$

Let's do the same problem again except change the dividend to 177.

1. Total machine.
2. Enter 177 into keyboard.
3. Depress dividend key to enter dividend.
4. Depress 25 into keyboard.
5. Depress divide equal key.
6. The answer is 7 with a remainder of 2.

Decimals in Division

The number of decimals in the quotient is always equal to the number of decimal places in the dividend less the number of decimal places in the divisor.

1. If dividend is larger than the divisor, for whole numbers, add as many zeros to dividend as decimal places are required in quotient. To carry the quotient two decimal places, add two zeros. Enter 17700 into keyboard; depress dividend key; enter 25 into keyboard; depress divide equals key. The answer is 7.08. In the problem

$$74.4321 \div 5.423$$

you would have one decimal place in the quotient because 3 decimal places in the divisor subtracted from 4 decimal places in the dividend = 1. However, if you will add two zeros to dividend, you will have three decimal points in quotient because 6 minus 3 = 3.

$$75.432100 \div 5.423 = 13.909$$

2. If the dividend is smaller than the divisor, add as many zeros to the dividend as there are digits in divisor (whole numbers or decimals). Then subtract the number of decimal places in divisor from number in dividend to find out how many places to mark off. In the problem

$$21.95 \div 375.7$$

add 4 zeros to the dividend, and you will have 5 decimal places in the quotient; this is, 6 in the dividend minus 1 in the divisor

$$21.950000 \div 375.7 = .05842$$

To follow addition or multiplication by division after multiplication or addition is completed, simply enter the divisor into the keyboard and depress $\frac{1}{\div}$ key.

$$95 + 24 + 75 + 94 \div 4 = 72$$

1. Automatic total on, automatic subtotal off--clear machine.
2. Enter all the numbers to be added with plus bar.
3. Enter divisor (4).
4. Depress $\frac{1}{\div}$ key.
5. Sum (288) appears on tape.

Divisor (4) appears under sum.

Quotient (72) appears under divisor.

Remainder (if any) appears under quotient.

You can see that this is very helpful in figuring averages.

There are many more operations within this machine's capacity that we will not be able to learn because of time limitation.

Negative Multiplication with Positive or Negative Balances

In the problem

$$(12 \times 25) - (3 \times 14) = 258$$

1. The automatic total should be on.
2. The automatic subtotal should be on.
3. Clear machine.

28⁷⁶

4. Enter 12 on keyboard.
5. Depress x key.
6. Enter 25 into keyboard.
7. Depress = key.
8. Enter 3 into keyboard.
9. Depress x key.
10. Enter 14 into keyboard.
11. Depress negative multiplication key (the red key).
12. Read the answer (it is the difference between these 2 products).

Suppose the problem is turned around:

$$(3 \times 14) - (12 \times 25) = 258 \text{ Cr.}$$

The answer is the same except it is a credit balance.

In the problem

$$\frac{79 \times 15}{25} = 47 \text{ with a remainder of } 10$$

1. The automatic total and subtotal off.
2. Clear machine.
3. Perform the multiplication.
4. Depress the divisor (25) into the keyboard.
5. Depress the $\frac{\cdot}{\cdot}$ key.
6. The answer is 47 with a remainder of 10.

Division Followed by Other Calculations

The quotient is always automatically stored in memory so that any subsequent operations may be performed.

$$\frac{1725}{18} \times 29 = 2,755$$

288
77

~~288~~ ~~77~~

1. The automatic total lever on and the automatic subtotal off.
2. Perform the division operation.
3. Enter multiplier (29) into keyboard.
4. Depress = key.

To Follow Division by Division

$$\frac{1927}{25} \div 5 = 15 \text{ remainder of } 2$$

1. Perform the first division.
2. Depress memory output key and dividend entry key.
3. Depress second divisor into keyboard.
4. Depress $\dot{=}$ key.

To Follow Division by Addition (or Subtraction)

As in the example

$$\frac{1925}{25} + 55 = 132$$

1. Perform division.
2. Depress memory output and add key.
3. Depress 55 into keyboard.
4. Depress add key.
5. Depress total key.

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the Olivetti-Underwood ten-key calculator. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

VICTOR TEN-KEY CALCULATOR
TAPE NO. 7

Script for Tape No. 7 to Accompany Film No. 7

The ten-key printing calculator is a combination of the ten-key adding machine and the rotary calculator.

1. This machine automatically adds, subtracts, multiplies, and divides.
2. It has a credit balance feature that provides for true negative totals.
3. It has a printed tape which shows proof of all calculations.
4. It has 10 keys.

The middle row of keys--the 4, 5, and 6--is the home row. These keys have a rounded, indented surface and the other keys have a flat surface. The index finger controls the 7, 4, and 1. The middle finger controls the 8, 5, and 2, and the ring finger controls the 9, 6, and 3. The operational keys on the left are controlled by the index finger and operational keys on the right by the little finger. The zero bar is operated by the thumb.

In this film you will be shown how to work each type of problem that you will be working in your workbook, and you will be shown finger techniques. You have your machine in front of you, and I suggest that you work these problems with me.

Let's begin with simple addition.

First, total the machine, using the little finger to depress the total bar. Always do this before any calculation, because any numbers previously entered into the machine will alter your answer. Notice the "T" on your tape. This indicates that the machine is clear.

It is very important that you develop the touch control at the very beginning of your instruction. The beginning exercises in your workbook will be designed to help you master touch control. Hold a pencil loosely by your thumb with the point facing to the right. With practice the awkward feeling will disappear and your speed will be increased since the pencil, with a snap of the finger, is in position to record the answer.

To set a number on the machine, read the number from left to right. For example, we will add $45 + 56 = 101$. First, position the automatic control lever on + or - position. Depress the four and the five; then tap the plus bar, which is also the total bar. Depress the five and the six. Notice the column indicator which indicates the number of digits indexed on the keyboard, then depress the plus bar. Depress the total bar, which is also the plus bar, and read the sum on the tape.

A decimal point is automatically printed on the tape because most figure work in offices involves dollars and cents. However, the decimal indicator, a sliding metal prong, is used to point off decimal points in division and multiplication, and when working with fractions, so the printed decimals should be disregarded unless adding and subtracting dollars and cents.

Let's get a subtotal and number the next problem number 34 with the non-add key. Depression of the non-add key will enter the desired digit or digits on the tape, but the number will not be added into the answer.

Problem No. 34	15
	17
	<u>18</u>
ST 50	45
	<u>37</u>

132

1. Clear the machine by depressing the total bar.
2. Enter the number 34 by depressing the 3 and 4.
3. Tap the non-add key. (Notice the N beside 34 on the tape.)
4. Depress augend (15) into the keyboard.
5. Hit plus bar.
6. Depress the addend (17) into the keyboard.
7. Hit plus bar.
8. Depress the addend (18) into the keyboard.
9. Hit plus bar.
10. At this point to get a subtotal engage the subtotal key and tap plus bar.
11. Read the subtotal--50--on the paper tape.
12. Depress the 4th addend (45) into keyboard.
13. Hit plus bar.
14. Depress the 5th addend (37) into keyboard.
15. Hit plus bar.
16. To get a total, engage the total key and hit plus bar. Read total on tape--132.

To subtract, follow the addition steps except tap the minus (-) bar instead of the plus bar for the subtrahend.

1. Clear machine by depressing the total bar.
2. Enter minuend (65) into keyboard.
3. Hit plus bar.
4. Enter subtrahend (35) into keyboard.
5. Hit minus bar. (Notice that the subtrahend appears on the tape with a minus beside of it.)
6. Total.
7. Read remainder (30) on the tape.

$$\begin{array}{r} 65 \\ -35 \\ \hline 30 \end{array}$$

Credit Balance

Let's subtract 65 from 30.

1. Total the machine.
2. Depress minuend (30) into the keyboard.
3. Tap plus bar.
4. Depress subtrahend (65) into the keyboard.
5. Tap minus bar.
6. Total
7. Notice that the difference is shown on the tape with a C sign beside it to indicate a credit balance.

There are two ways to correct a mistake.

1. To clear all the digits that have been depressed, operate the clear key. For example, suppose 544 were depressed, and 455 should have been depressed. Notice the 3 in the column indicator. Depress the clear key, and all three digits are cleared. Notice the column indicator. Now depress correct entry - 455.

2. If a number has been entered on the keyboard and added into the machine, the same number can be entered on the keyboard and subtracted.
3. Likewise, and incorrect number that has been subtracted can be added into the machine.

The Repeat Key

On occasion, you might wish to add or subtract the same number several times. In this case, operate the repeat key instead of the plus bar.

$$\begin{array}{r}
 7.95 \\
 3.22 \\
 3.22 \\
 3.22 \\
 \underline{3.22} \\
 20.83
 \end{array}$$

1. Total.
2. Enter 7.95 with plus bar.
3. Depress 3.22 into keyboard and hold down the repeat key until the number has printed 4 times on the tape.
4. Total and read sum, 20.83.

The twirler knob is used to space the tape or when loading a new roll of tape.

Multiplication

Multiplication is automatic. The larger number should be indexed into the keyboard regardless of the way it is written.

The total is obtained automatically when automatic lever is engaged.

For example, in the problem 24×175 , the following steps should be used.

1. Position the master control lever on x.
2. Index 175 on the keyboard.
3. Tap add bar.
4. Index 24 into the keyboard.
5. Tap add bar.
6. The product as shown on the tape is 4,200.
7. Notice the x on the tape to indicate multiplication.

Automatic Subtotal Lever

A subtotal in multiplication will print automatically when the automatic subtotal lever is in position. This permits the accumulation of products. For example, in this problem:

$$\begin{array}{r}
 75 \times 94 \\
 81 \times 124 \\
 42 \times 305 \\
 \hline
 19 \times 728
 \end{array}$$

- Return automatic total to on position.

43,736

Return automatic total to on position before final multiplication operation. Notice that there is an automatic subtotal after every multiplication operation.

Multiplication of Decimals

Decimal places are pointed off the same as in paper-and-pencil multiplication; that is, the sum of the decimal places in the multiplier and the multiplicand is pointed off in the product.

For example: $17.95 \times 3.5 = 62.825$
 $2 + 1 = 3$ decimal places

84
295

When decimals occur in accumulative multiplication, the same number of decimal places in each multiplication must be maintained. This can be done by adding zeros to either the multiplier or multiplicand.

$$\begin{array}{r} 4.75 \quad x \quad 4.25 \\ 1.5 \quad x \quad 15.21 \\ 75 \quad x \quad 4.5 \\ \hline .15 \quad x \quad 20 \end{array}$$

383.5025

The largest number of decimal places in the product of the individual multiplications will be four (4.75 x 4.25), so let's mark off four decimal places with movable decimal indicator.

Remember to put automatic subtotal lever in on position.

Depress 475 into keyboard.

Depress plus bar.

Depress 425 onto the keyboard.

Depress plus bar.

Depress 150 onto keyboard to maintain four decimal places.

Depress plus bar.

Depress 1521 into keyboard.

Depress plus bar.

Depress 75000 into keyboard to maintain four decimal places.

Depress plus bar.

Depress 45 into keyboard.

Depress plus bar.

Return automatic total to on position.

Depress 1500 onto keyboard to maintain four decimal places.

Depress plus bar.

Depress 20 onto keyboard.

Depress plus bar.

Read the total of the products, 383.5025.

NOTE:

If the plus bar is accidentally pressed a second time after entering the first multiplication or division, the machine will run continuously. By holding the STOP BUTTON down, the machine will stop, permitting the entering of the second factor and completion of the problem.

A constant is any number used over and over again in one set of problems. In multiplication, the constant is the multiplicand (the first number entered on the keyboard) and is multiplied any number of times by other numbers.

In this example, 250 is the constant.

$$175 \times 250 = 43,750$$

$$325 \times 250 = 81,250$$

$$495 \times 250 = 123,750$$

1. Master control on X.
2. Move constant lever to expose C in window.
3. Index 250 into keyboard.
4. Tap plus bar.
5. Index 175 onto keyboard .
6. Tap plus bar.
7. Read total 43,750 on the tape, and notice the multiplicand appears on tape ready for next operation.
8. Index 325 onto the keyboard.

9. Tap plus bar.
10. Read total 81,250 on the tape.
11. Return constant lever to normal position before working the last problem in a series.
12. Index 495 onto keyboard.
13. Tap plus bar.
14. Read answer (123,750) on the tape.

Division

Division is automatic, and factors are entered as they are read.

$$175 \div 25 = 7$$

1. Automatic control lever on divide.
2. Automatic total on.
3. Enter 175 into keyboard.
4. Depress plus bar.
5. Enter 25 on keyboard.
6. Depress plus bar.
7. The answer is 7.

$$177 \div 25 = 7 \frac{2}{25}$$

Let's do the same problem again except change the dividend to 177.

1. Total machine.
2. Enter 177 into keyboard.
3. Depress plus bar.
4. Depress 25 on keyboard.
5. Depress plus bar.
6. Read answer on tape--7 with remainder of 2.

Decimals in Division

The number of decimals in the quotient is always equal to the number of decimal places in the dividend less the number of decimal places in the divisor.

1. If dividend is larger than the divisor, for whole numbers, add as many zeros to dividend as decimal places are required in quotient. To carry the quotient two places, add two zeros. Enter 17700 into keyboard; depress plus bar; enter 25 into keyboard; depress plus bar. The answer is 7.08.

In the problem:

$$75.4321 \div 5.423 = 13.9$$

you would have one decimal place in the quotient because 3 decimal places in the divisor subtracted from 4 decimal places in the dividend = 1. However, if you add two zeros to dividend, you will have 3 decimal places in quotient because 6 minus 3 = 3.

$$75.432100 \div 5.423 = 13.909$$

2. If the dividend is smaller than the divisor, add as many zeros to the dividend as there are digits in divisor (whole numbers or decimals). Then subtract the number of decimal places in divisor from number in dividend to find out how many places to mark off. In the problem: $21.95 \div 375.7$ add 4 zeros to the dividend, and you will have 5 decimal places in the quotient; that is, 6 in the dividend minus 1 in the divisor.

Constant Division

Suppose you wanted to find what percentage 80 days is of a year, or 100 days, or 165 days.

Add 2 zeros to each variable; that is to 80, to 100, and to 165, and use 365 as the constant divisor.

1. Master control lever on divide.
2. Move constant lever down to expose C in window.
3. Index 8,000 into keyboard.
4. Tap plus bar.
5. Index 365 into keyboard.
6. Tap plus bar.
7. Read answer 21%.
8. Index 10,000 into keyboard.
9. Tap plus bar.
10. Read answer 27%.
11. Before working the last problem of a series, return constant lever to normal position.
12. Index 165000 into keyboard.
13. Tap plus bar.
14. Read answer--45%.

NOTE: The 2 zeros are added to 80, 100, and 165 to get 2 decimal places in the quotient. To change a decimal to a percent, move the decimal point 2 places to the right and add a percent sign.

Sums, products, and differences can be transferred without re-entering and can then be multiplied or divided. This is done with the use of the total transfer button.

To follow addition or subtraction by multiplication as in the following problem:

$$(94 + 24 + 75) \times 4 = 772$$

1. Clear the machine.
2. Master control lever set for addition.
3. Engage automatic total.
4. Index and list all addends--94, 24, and 75.

5. Set master control lever for multiplication.
6. Press total transfer button.
7. Tap the add bar.
8. Enter 4 on the keyboard.
9. Tap the add bar.
10. Read answer 772 on tape.

To follow addition or subtraction by division as in the problem:

$$(95 + 24 + 75 + 94) \div 4 =$$

1. Clear machine.
2. Program master control lever for addition.
3. Engage automatic total.
4. Index and list addends $(95 + 24 + 75 + 94)$.
5. Master control lever on divide.
6. Press total transfer button.
7. Tap plus bar.
8. Index 4 and tap plus bar.
9. Read answer 72.

Multiplying Three Factors

$$15 \times 75 \times 105 = 118,125$$

1. Clear machine.
2. Engage automatic subtotal.
3. Master control lever on multiply.
4. Index and list first two factors 15 and 75.
5. Press total transfer button.

6. Tap plus bar.
7. Index and list third factor 105.
8. Tap plus bar.
9. Read answer 118,125.

Multiplication Followed By Division

$$\frac{79 \times 15}{25} = 47$$

1. Clear machine.
2. Program master control lever to multiply.
3. Engage automatic subtotal.
4. Index and list 79 and 15.
5. Move master control lever to divide.
6. Press total transfer button.
7. Tap plus bar.
8. Index and list 25.
9. Read answer 47.

We have covered all the instructions necessary to add, subtract, multiply and divide. At this point, you should go back to the workbook and work the problems for the ten-key calculator. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

VICTOR FULL KEYBOARD ADDING-LISTING MACHINE
TAPE NO. 8

A separate key for each digit 1 through 9 is one of the features of the full keyboard adding-listing machine. The number of banks of keys; that is, vertical rows, determines the capacity of the machine.

The first column from the right is for units, the second for tens, and the third for hundreds, etc.

Although the touch system cannot be used on the full keyboard adding-listing machine, the operation is facilitated by simultaneous depression of the keys and the plus bar, which is controlled by the little finger.

A time-saving feature is the automatic entry of the zero.

1. Use the thumb to depress adjacent keys. For example:

22	55
44	77

2. Use the first and second fingers to depress keys near each other. For example:

56
34
45
23

3. Use the thumb and the middle finger when numbers are farther apart. For example:

303

93

25 17

52 81

36 61

63

4. For three-digit numbers, use either the thumb and first and second fingers, or the first, second, and third fingers, depending upon which is more comfortable. For 223, use the first, second, and third fingers. For 156, use the thumb, first, and second fingers.
5. Use two hand motions to depress four-digit numbers. For example:

69.45

35.99

78.31

19.25

6. Use three hand motions to depress five- or six-digit numbers.

478.942

784.376

192.145

Try to read numbers at a quick glance. Avoid splitting numbers into sections for reading.

Let's begin with simple addition:

First total the machine, using the little finger to depress the "T" bar. Always do this before any calculation, because any numbers previously entered into the machine will alter your answer. Notice the "T" on your tape. This indicates that the machine is clear.

$$45 + 56 = 101$$

304

94

1. Simultaneously enter 45 into keyboard with first and second finger. Tap plus bar with little finger. Notice that the total bar is also the plus bar.
2. Simultaneously enter 56 into keyboard with first and second fingers and tap plus bar with little finger.
3. Total with total bar and read sum on the tape which shows proof of all calculations.

Let's get a subtotal and number the next problem number 34 with the non-add key. Depression of the non-add key will enter the desired digit or digits on the tape, but the number will not be added into the answer.

Problem No. 34.	15
	17
	<u>18</u>
	ST 50
	45
	<u>67</u>
	162

1. Clear the machine by depressing the T key.
2. Enter the number 34 by depressing the 3 and 4 simultaneously.
3. Tap the non-add key.
4. Depress augend (15) into the keyboard and hit plus bar.
5. Depress the addend (17) into the keyboard and hit plus bar.
6. Depress the addend (18) into the keyboard and hit plus bar.
7. At this point to get a subtotal depress the ST bar.
8. Read the subtotal--50--on the paper tape.
9. Depress the fourth addend (45) into keyboard and hit plus bar.
10. Depress the fifth addend (67) into keyboard and hit plus bar.
11. Total 162.

To subtract, follow the addition steps except tap the minus (--) bar instead of the plus bar for the subtrahend.

1. Clear machine by depressing the T bar.
2. Enter minuend (65) into keyboard and hit plus bar.
3. Enter subtrahend (35) into keyboard and hit minus bar.
4. Notice that the subtrahend appears on the tape in red with a minus sign beside of it.
5. Total.
6. Read remainder (30) on the tape.

$$\begin{array}{r} 65 \\ -35 \\ \hline 30 \end{array}$$

Credit Balance

Let's subtract 65 from 30.

1. Total the machine.
2. Depress minuend (30) into the keyboard and tap plus bar.
3. Depress subtrahend (65) into the keyboard and tap minus bar.
4. Total.
5. Notice that the difference is shown on the tape in red with a C sign beside it to indicate a credit balance.

There are two ways to correct a mistake.

1. To clear all the digits that have been depressed, depress the clear key. For example, suppose 544 were depressed, and 455 should have been depressed. Depress the clear key, and all three digits are cleared. Now depress correct entry--455.
2. If a number has been entered on keyboard and added into the machine, the same number can be entered on the keyboard and subtracted.
3. Likewise an incorrect number that has been subtracted can be added into the machine.

The Repeat Key

On occasion, you might wish to add or subtract the same number several times. In this case, engage the repeat key to lock the number into the keyboard.

1. Total.
2. Enter 7.95 with plus bar.
3. Engage repeat key.
4. Depress 3.22 into keyboard and tap plus bar four times.
5. Disengage repeat key.
6. Clear keyboard.
7. Total.

7.95
3.22
3.22
3.22
<u>3.22</u>
20.83

A decimal point is automatically printed on the tape, but is should be ignored unless the answer requires a decimal in that position.

The decimal indicator, a sliding metal prong, is used to point off decimal points in division and multiplication, and when working with fractions.

The twirler knob is used to space the tape or when loading a new roll of tape.

Multiplication is performed by using repeated addition. The larger number should be indexed into the keyboard regardless of the way it is written.

For example, in the problem 24×175 , the following steps should be used:

1. Index 175 on the keyboard.
2. Engage repeat key.
3. Tap add bar four times.
4. Clear keyboard with clear key.
5. Index 1750 on the keyboard (this moves the amount over 1 column).
6. Tap add bar 2 times.
7. Clear keyboard with clear key.
8. Disengage repeat key.
9. Total.
10. The product as shown on the tape is 4,200.

Another and perhaps simpler way to multiply is to depress the multiplicand into the keyboard and keep it depressed while the plus bar is tapped with the little finger the necessary amount of times.

In the problem 30.5×3.02 .

1. Depress 305 into the keyboard and tap the plus bar 2 times.
2. Depress 30500 into the keyboard and tap plus bar 3 times.

(Remember that the zero is entered automatically.)

Note also that when a zero appears in the multiplier, do not depress the add bar in that column, but move the amount over another column.

3. Read the product on the tape.
4. Decimal places are pointed off the same as in paper and pencil multiplication; that is, sum of the decimal places in the multiplier and the multiplicand is pointed off in the product. So the product is 92.110 or 92.11 since the zero adds nothing to the answer and is dropped.

Short-Cut Multiplication

Multiplying 2.38×378 by simple multiplication requires 18 operations. However, with short-cut multiplication the number of operations is reduced to 8. Here is the rule for short-cut multiplication.

When a digit in the multiplier is greater than 5, repeat subtract the multiplicand the number of times equal to the difference between that digit and 10; then, carry 1 to the next left-hand digit.

1. Hold 2.38 in the keyboard and tap the minus bar 2 times.
(Sometimes both hands must be used unless the repeat key is depressed.)
2. Hold 2380 in the keyboard and tap minus bar 2 times.
3. Depress 23800 into keyboard and tap the plus bar 4 times.

The total product is 899.64.

Division

Division is performed by multiplying the dividend by the reciprocal of the divisor.

A reciprocal of a number is the result of dividing that number into one. For example, in the problem

$$175 \div 15 = 7$$

the reciprocal of 15 is $.06\bar{6}$ --15 divided into 1.00. A chart of reciprocals will be found in the back of your workbook.

1. Hold 175 into keyboard and tap plus bar 4 times.
2. Read quotient, being sure to mark off the two decimal places in the reciprocal.

Division Containing Fractions

Fractions must be converted to decimal equivalents.

To find the reciprocal of a number containing a fraction:

$$125.5 \div 10 \frac{1}{2}:$$

1. Convert the fraction to a decimal; that is $10 \frac{1}{2}$ equals 10.5.
2. Find the reciprocal of 105 in the table of reciprocals at the back of your workbook, and move the decimal point one place to the right; that is .00952 to .0952.
3. Multiply 125.5 by .0952.
4. Mark off 5 decimal places (1 in the multiplicand, formerly the dividend, and 4 in the multiplier, formerly the divisor).
5. The quotient is 11.9476.

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the full-keyboard adding-listing machine. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

VICTOR TEN-KEY ADDING-LISTING MACHINE
TAPE NO. 9

The ten-key adding machine is one of the most popular because over half of all figure work in the average office is made up of problems of addition. Multiplication and division can be performed, but not automatically as on a calculator.

It has a credit balance feature that provides for true negative totals.

It has a printed paper tape which shows proof of all calculations.

It has ten keys.

The middle row of keys--the 4, 5, and 6--is the home row. These keys have a rounded, indented surface and the other keys have a flat surface. The index finger controls the 7, 4, and 1. The middle finger controls the 8, 5, and 2, and the ring finger controls the 9, 6, and 3. The operational keys on the left are controlled by the index finger, and the operational keys on the right by the little finger. The zero bar is operated by the thumb.

In this film, you will be shown how to work each type of problem that you will be working in your workbook, and you will be shown proper finger techniques. You have your machine in front of you, and I suggest that you work these problems with me.

Let's begin with simple addition.

First, total the machine, using the little finger to depress the "T" bar. Always do this before any calculation, because any numbers previously entered into the machine will alter your answer. Notice the "T" on your tape. This indicates that the machine is clear.

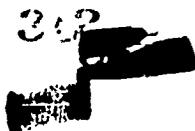
It is very important that you develop the touch control at the very beginning of your instruction. The beginning exercises in your workbook will be designed to help you master touch control. Hold a pencil loosely by the thumb with the point facing to the right. With practice the awkward feeling will disappear, and your speed will be increased since the pencil, with a snap of the finger, is in position to record the answer.

To set a number on the machine, read the number from left to right. For example, we will add 45 and 56 = 101. Depress the four and the five-- then tap the plus bar, which is also the total bar. Depress the five and the six. Notice the column indicator which indicates the number of digits indexed on the keyboard. Then depress the plus bar. Then depress the total bar and read the sum on the tape.

A decimal point is automatically printed on the tape because most figure work in offices involves dollars and cents. Disregard it unless the answer has two decimals in it. However, the decimal indicator, a sliding metal prong, is used to point off decimal points in division and multiplication and when working with fractions.

Let's get a subtotal and number the next problem number 34 with the non-add key. Depression of the non-add key will enter the desired digit or digits on the tape, but the number will not be added into the answer.

Problem No 34	15
	17
	<u>18</u>
ST	50
	45
	<u>67</u>
	162



1. Clear the machine by depressing the T key.
2. Enter the number 34 by depressing the 3 and 4.
3. Tap the non-add key.
4. Depress augend (15) into keyboard.
5. Hit plus bar.
6. Depress the addend 17 into the keyboard.
7. Hit plus bar.
8. Depress the addend 18 into the keyboard.
9. Hit plus bar.
10. At this point to get a subtotal depress the ST key.
11. Read the subtotal--50--on the paper tape.
12. Depress the fourth addend (45) into the keyboard.
13. Hit plus bar.
14. Depress the fifth addend (67) into keyboard.
15. Hit plus bar.
16. Total 162.

To subtract, follow the addition steps except tap the minus (-) bar instead of the plus bar for the subtrahend.

1. Clear machine by depressing the T key.
2. Enter minuend (65) into keyboard.
3. Hit plus bar.
4. Enter subtrahend (35) into keyboard.
5. Hit minus bar. (Notice that the subtrahend appears on the tape in red with a minus sign beside of it.)
6. Total.

7. Read remainder (30) on the tape.	65
	<u>-35</u>

30



Credit Balance

Let's subtract 65 from 30.

1. Total the machine.
2. Depress minuend (30) into keyboard.
3. Tap plus bar.
4. Depress subtrahend (65) into keyboard.
5. Tap minus bar.
6. Total.
7. Notice that the difference is shown on the tape in red with a C sign beside it to indicate a credit balance.

There are two ways to correct a mistake.

1. To clear all the digits that have been depressed, depress the clear key. For example, suppose 544 were depressed, and 455 should have been depressed. Notice the three in the column indicator. Depress the clear key, and all three digits are cleared. Notice the column indicator. Now depress correct entry--455.
2. If a number has been entered on keyboard and added into the machine, the same number can be entered on the keyboard and subtracted.
3. Likewise, an incorrect number that has been subtracted can be added into the machine.

The Repeat Key

On occasion, you might wish to add or subtract the same number several times. In this case, engage the repeat key to lock the number into the keyboard.

$$\begin{array}{r} 7.95 \\ 3.22 \\ 3.22 \\ 3.22 \\ 3.22 \\ \hline 3.22 \\ 20.83 \end{array}$$

314

104

Total.

Enter 7.95 with plus bar.

Engage repeat key.

Depress 3.22 into keyboard and tap plus bar four times.

Disengage repeat key.

Clear keyboard and total.

The twirler knob is used to space the tape or when loading a new roll of tape.

Multiplication is performed by using repeated addition. The larger number should be indexed into the keyboard regardless of the way it is written.

For example, in the problem 24×175 , the following steps should be used.

1. Index 175 on the keyboard.
2. Engage repeat key.
3. Tap add bar four times.
4. Tap zero key. (This moves the amount over one column.)
5. Tap add bar two times.
6. Clear keyboard with correction key.
7. Disengage repeat key.
8. Total.
9. The product as shown on the tape is 4,200.

When a zero appears in the multiplier, do not depress the add bar in that column. Move the amount over another column by depressing the zero key.

For example $10.75 \times 3.02 = 32.465$.

1. Enter 10.75 into the keyboard and engage the repeat key.
2. Tap the add bar two times.
3. Tap the zero key two times to move the amount over two columns because of the zero in the multiplier.
4. Tap the add bar three times.
5. Clear the keyboard, disengage the repeat key and total.
6. Read the product on the tape.
7. Decimal places are pointed off the same as in paper and pencil multiplication; that is, the sum of the decimal places in the multiplier and the multiplicand is pointed off in the product. So the product is 32.4650, or 32.465 since the zero adds nothing to the answer and is dropped.

Short-Cut Multiplication

Multiplying 2.38×378 by simple multiplication requires 18 operations. However, with short-cut multiplication, the number of operations is reduced to eight. Here is the rule for short-cut multiplication.

When a digit in the multiplier is greater than 5, repeat subtract the multiplicand the number of times equal to the difference between that digit and 10; then, carry 1 to the next left-hand digit.

1. Enter 2.38 into keyboard, engage repeat key, and depress minus bar two times.
2. Depress zero key to move multiplicand one column to the left.
3. Depress the minus bar two times.

4. Depress zero key to move multiplicand one column to the left.
5. Depress plus bar four times.
6. Disengage repeat key and clear machine.
7. Total: product is 899.64.

Accumulative Multiplication

To perform accumulative multiplication, complete all the operations necessary for simple multiplication. You may subtotal after each part of the problem if that information is desirable. Otherwise, total only after the final operation.

For example, in the problem.

$$\begin{array}{r}
 75 \quad x \quad 94 \\
 81 \quad x \quad 124 \\
 42 \quad x \quad 305 \\
 \hline
 19 \quad x \quad 728
 \end{array}$$

43,736

1. Index 94 into the keyboard since it is the larger of the two numbers.
2. Engage repeat key.
3. Multiply by 75.
4. Clear keyboard.
5. Index 81 into the keyboard.
6. Multiply by 124.
7. Clear keyboard.
8. Index 305 into the keyboard.
9. Multiply by 42.
10. Clear keyboard.
11. Index 728 into keyboard.



12. Multiply by 19.
13. Clear machine.
14. Total.
15. The total of the products is 43,736.

Negative Multiplication

To perform negative multiplication, multiply the first part of the problem by the positive method without totaling. Multiply the second part of the problem by the negative method. The answer will be the difference between the two products.

For example:

$$(4 \times 251) - (3 \times 89)$$

1. Engage repeat key.
2. Depress 251 into keyboard.
3. Multiply by 4.
4. Clear keyboard.
5. Depress 89 into keyboard.
6. Multiply by 3 with minus bar.
7. Clear machine.
8. Total.
9. The difference is 737.

Multifactor Multiplication

To multiply three or more factors, the product of the first operation is multiplied by the third factor.

For example:

$$15 \times 75 \times 105 = 118,125$$

1. Engage repeat key.
2. Depress 75 into keyboard.
3. Multiply by 15.
4. Clear keyboard.
5. Total.
6. Depress the product 1,125 into keyboard.
7. Multiply by 105.
8. Clear keyboard.
9. Total.
10. The product is 118,125.

Division is performed by multiplying the dividend by the reciprocal of the divisor.

A reciprocal of a number is the result of dividing that number into 1.

i. For example, in the problem:

$$175 \div 25 = 7$$

the reciprocal of 25 is .04--25 divided into 1.00. A chart of reciprocals will be found in the back of your workbook.

1. Depress 175 into keyboard.
2. Engage repeat key.
3. Tap plus bar four times.
4. Disengage repeat key.
5. Clear keyboard.
6. Read quotient, being sure to mark off the two decimal places in the reciprocal.

Division Containing Fractions

Fractions must be converted to decimal equivalents.

To find the reciprocal of a number containing a decimal:

$$125.5 \div 10 \frac{1}{2}$$

1. Convert the fraction to a decimal; that is, $10 \frac{1}{2}$ equals 10.5.
2. Find the reciprocal of 105 in the table of reciprocals at the back of your workbook, and move the decimal point one place to the right; that is, .00952 to .0952.
3. Multiply 125.5 by .0952.
4. Mark off 5 decimal places (1 in the multiplicand, formerly the dividend, and 4 in the multiplier, formerly the divisor).
5. The quotient is 11.9476.

Since the ten-key adding-listing machine is operated by touch and since the machine is used primarily for addition, your level of skill will be determined by the mastery of the touch system.

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the ten-key adding-listing machine. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

BURROUGHS TEN-KEY ADDING-LISTING MACHINE
TAPE NO. 10

The ten-key adding-listing machine is one of the most popular because over half of all figure work in the average office is made up of problems of addition. Multiplication and division can be performed, but not automatically as on a calculator.

It has a credit balance feature that provides for true negative totals.

It has a printed paper tape which shows proof of all calculations.

It has ten keys.

The middle row of keys--the 4, 5, and 6--is the home row. These keys have a rounded, indented surface, and the other keys have a flat surface. The index finger controls the 7, 4, and 1. The middle finger controls the 8, 5, and 2; and the ring finger controls the 9, 6, and 3. The operational keys on the right are controlled by the little finger, and the operational keys on the left by the index finger. The zero bar is operated by the thumb.

In the film, you will be shown how to work each type of problem that you will be working in your workbook, and you will be shown proper finger techniques. You have your machine in front of you, and I suggest that you work these problems with me.

Let's begin with simple addition.

1. First, total the machine using the little finger to depress the "TOT" key. Always do this before any calculation, because any numbers previously entered into the machine will alter your answer. Notice the asterisk on your tape. This indicates that the machine is clear.

It is very important that you develop the touch control at the very beginning of your instruction. The beginning exercises in your workbook will be designed to help you master touch control. Hold a pencil loosely with your thumb and the point facing to the right. With practice, the awkward feeling will disappear, and your speed will be increased since the pencil, with a snap of the finger, is in position to record the answer.

2. Place your index, middle, and ring fingers on the 4, 5, and 6. The plus bar is depressed with the little finger.
3. To set a number on the machine, read the number from left to right. For example, we will add $45 + 56 = 101$. Depress the 4 and the 5--then tap the plus bar; depress the 5 and the 6. Notice the column indicator which indicates the number of digits indexed on the keyboard; then depress the plus bar. Then depress the total key, and read the sum 101 on the tape.

A decimal point is automatically printed on the tape because most figurework in offices involves dollars and cents. Disregard it unless your answer should have two decimals in it. However, decimal points will have to be pointed off manually when working with fractions or when performing multiplication and division.

Let's get a subtotal and number the next problem, which is number 34, with the non-add key. Depression of the non-add will enter the desired digit or digits on the tape, but the number will not be added into the answer.

Problem No. 34.	15
	17
	<u>18</u>
	50
	45
	<u>67</u>
	162

1. Clear machine by depressing the T key.
2. Enter the number 34 by depressing the 3 and the 4.
3. Tap the non-add key.
4. Depress augend 15 into keyboard.
5. Hit plus bar.
6. Depress the addend 17 into the keyboard.
7. Hit plus bar.
8. Depress the addend 18 into the keyboard.
9. Hit plus bar.
10. At this point to get a subtotal depress the ST key.
11. Read the subtotal--50--on the paper tape.
12. Depress the 4th addend 45 into keyboard.
13. Hit plus bar.
14. Depress the 5th addend 67 into the keyboard.
15. Hit plus bar.
16. Total 162.

To subtract, follow the addition steps except tap the minus (-) key instead of the plus bar for the subtrahend.

1. Clear machine by depressing the T key.
2. Enter minuend 65 into keyboard.
3. Hit plus bar.
4. Enter subtrahend 35 into keyboard.
5. Hit minus key (notice that the subtrahend appears on the tape with a minus sign beside it).
6. Total
7. Read remainder 30 on the tape.

$$\begin{array}{r} 65 \\ -35 \\ \hline 30 \end{array}$$

Credit Balance

Let's subtract 65 from 30.

1. Total the machine
2. Depress minuend 30 into the keyboard.
3. Tap plus bar.
4. Depress subtrahend 65 into the keyboard.
5. Tap minus bar.
6. Total
7. Notice that the difference is shown on the tape with a minus sign beside it to indicate a credit balance.

There are two ways to correct a mistake.

1. To clear all digits that have been depressed, depress the clear key. (It has an E on it.) For example, suppose 544 were depressed, and 455 should have been depressed. Notice the column indicator. Depress the clear key, and all digits are cleared. Now depress correct entry--455.
2. If a number has been entered on keyboard and added into the machine, the same number can be entered on the keyboard and subtracted.
3. Likewise, an incorrect number that has been subtracted can be added into the machine.

The Repeat Key

On occasion, you might wish to add or subtract the same number several times. In this case, plus the number into the keyboard with the X key which automatically locks the number into the machine until the total key is hit, which automatically clears the machine, or until the clear key is depressed.

7.95
3.22
3.22
3.22
3.22

20.83

Total.

Enter 7.95 with plus bar.

Index 3.22 into keyboard.

Hit X key 4 times.

Total.

The twirler knob is used to space the tape or when loading a new roll of tape.

Multiplication is performed by using repeated addition. The larger number should be indexed into the keyboard, regardless of the way it is written.

For example, in the problem 24×175 , the following steps should be used:

1. Index 175 on the keyboard.
2. Tap the X key 4 times.
3. Tap zero key (this moves the amount over 1 column).
4. Tap the X key 2 times.
5. Total.
6. The product as shown on the tape is 4,200.

When a zero appears in the multiplier, do not depress the add bar in that column. Move the amount over another column by depressing the zero key. For example: $10.75 \times 30.2 = 324.65$.

53.5

1. Enter 1075 into the keyboard.
2. Tap the X key 2 times.
3. Tap the zero key two times to move the amount over two columns because of the zero in the multiplier.
4. Tap the X key 3 times.
5. Total.
6. Read the product on the tape.
7. Decimal places are pointed off the same as in paper and pencil multiplication; that is, the sum of the decimal places in the multiplier and in the multiplicand is pointed off in the product. So the product is 324.650, or 324.65 since the zero adds nothing to the answer and is dropped.

Short-Cut Multiplication

Multiplying 2.38×378 by simple multiplication requires 18 operations. However, with short-cut multiplication the number of operations is reduced to 8. Here is the rule for short-cut multiplication: When a digit in the multiplier is greater than 5, repeat subtract the multiplicand the number of times equal to the difference between that digit and 10, then carry 1 to the next left-hand digit.

1. Enter 2.38 into the keyboard.
2. Depress minus bar and repeat key simultaneously 2 times.
3. Depress zero key to move multiplicand 1 column to the left.
4. Depress minus bar and repeat key simultaneously 2 times.
5. Depress zero key to move multiplicand 1 more column to the left.
6. Depress repeat key until amount prints 4 times.
7. Total product is 899.64.

326

116

Accumulative Multiplication

To perform accumulative multiplication, complete all the operations necessary for simple multiplication.

You may subtotal after each part of the problem if that information is desirable. Otherwise, total only after final operation.

For example, in the problem:

$$\begin{array}{r} 75 \times 94 \\ 81 \times 124 \\ 42 \times 305 \\ \underline{19 \times 728} \end{array}$$

43,736

1. Index 94 into the keyboard since it is the larger of the two numbers.
2. Multiply by 75.
3. Clear keyboard.
4. Index 81 into the keyboard.
5. Multiply by 124.
6. Clear keyboard.
7. Index 305 into the keyboard.
8. Multiply by 42.
9. Clear keyboard.
10. Index 728 into keyboard.
11. Multiply by 19.
12. Total.
13. The total of the products is 43,736.

Negative Multiplication

To perform negative multiplication, multiply the first part of the problem by the positive method without totaling. Multiply the second part of the problem by the negative method. The answer will be the difference between the two products.

For example:

$$(4 \times 251) - (3 \times 89) =$$

1. Depress 251 into keyboard.
2. Multiply by 4.
3. Clear keyboard.
4. Depress 89 into keyboard.
5. Multiply by 3 with the x and minus bar.
6. The difference is 737.

Multifactor Multiplication

To multiply three or more factors, the product of the first operation is multiplied by the third factor.

For example:

$$15 \times 75 \times 105 = 118,125$$

1. Depress 75 into keyboard.
2. Multiply by 15.
3. Total.
4. Depress the product 1,125 into keyboard.
5. Multiply by 105.
6. The product is 118,125.

Division

Division is performed by multiplying the dividend by the reciprocal of the divisor.

A reciprocal of a number is the result of dividing that number into 1.

For example, in the problem:

$$175 \div 25 = 7$$

The reciprocal of 25 is .04--25 divided into 1.00. A chart of reciprocals will be found in the back of your workbook.

1. Depress 175 into keyboard.
2. Tap the x key 4 times.
3. Total.
4. Read quotient 7, being sure to mark off the 2 decimal places in the reciprocal.

Division Containing Fractions

Fractions must be converted to decimal equivalents.

To find the reciprocal of a number containing a fraction:

1. Convert the fraction to a decimal; that is, $10 \frac{1}{2}$ equals 10.5 in the problem $125.5 \div 10 \frac{1}{2}$.
2. Find the reciprocal of 105 in the table of reciprocals at the back of your workbook, and move the decimal point 3 place to the right; that is, .00952 to .0952.
3. Multiply 125.5 by .0952.
4. Mark off 5 places (1 in the multiplicand, formerly the dividend, and 4 in the multiplier, formerly the divisor).
5. The quotient is 11.9476.

Since the ten-key adding-listing machine is operated by touch and since the machine is used primarily for addition, your level of skill will be determined by the mastery of the touch system.

We have covered all the instructions necessary to add, subtract, multiply, and divide. At this point, you should go back to the workbook and work the problems for the ten-key adding-listing machine. It may be necessary to view this film again and to listen to this tape again. Please feel free to do so. Actually, this is the purpose of using this medium of instruction instead of the traditional classroom lecture.

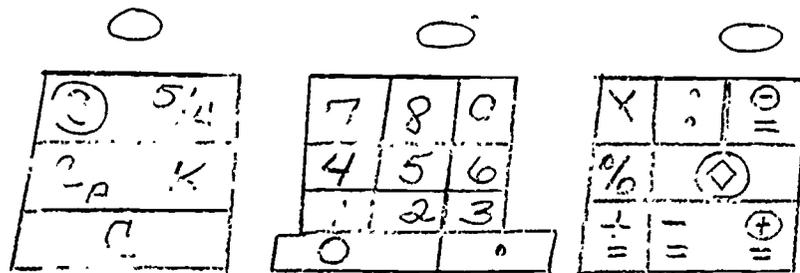
120
340



THE ELECTRONIC CALCULATOR

Tape No. 11

746.57



Olympia CD 400

THE LATEST THING IN BUSINESS EQUIPMENT

3:2

120-A

The electronic calculator will do everything--well, almost everything. Would you believe that it is noiseless? ? ? ?

Switching-on and-off is done by the rocker switch at the front side underneath the machine.

When the calculator is switched on, the yellow pilot light will be illuminated and a zero with the decimal point in the zero position is seen on the display register. Now the calculator is ready for calculating.

The middle row of keys--the 4, 5, and 6,--is the home row. The 5 has a raised number on it to help you locate the home row without looking. The index finger controls the 7, 4, and 1. The middle finger controls the 8, 5, and 2, and the ring finger controls the 9, 6, and 3. The operational keys on the left are controlled by the index finger and the operational keys on the right by the little finger. The zero bar is operated by the thumb.

It is very important that you develop the touch control at the very beginning of your instruction. The beginning exercises in your workbook are designed to help you master touch control. Hold a pencil loosely by your thumb with the point facing to the right. With practice, the awkward feeling will disappear and your speed will be increased since the pencil, with a snap of the finger, is in position to record the answer.

3-12

120-B



The display clear key has two functions:

1. To clear the display register
2. To set fixed decimal points by simultaneously depressing this key with the key designating the number of decimal points desired. For example, to work to two decimal points, depress the "C" and the 2 keys simultaneously. The decimals are entered in the proper sequence by depressing the decimal key. For example: 58.78.



The C_A clear key clears the display register and the arithmetic units.



The storage clear key clears all of the accumulated values that have been entered into the memory.



The 5/4 key rounds off automatically all products and quotients when depressed

3-3

120-C



When the constant key is depressed, the second factor in multiplication or division (that is, the multiplier or divisor) and its arithmetic functions (that is, to divide or to multiply) is retained as a constant.



The plus/result key or plus/equal has two functions.

1. The plus key and result key for addition.
2. The positive result key for multiplication and division.

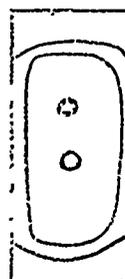


Likewise, the minus/result key or minus/equal has two functions.

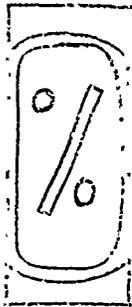
1. The minus key and result key for subtraction.
2. The negative result key for multiplication and division.



The multiplication key is used to enter the first factor in multiplication (that is, the multiplicand).



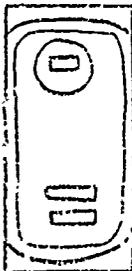
The division key is used to enter the first factor in division (that is, the dividend).



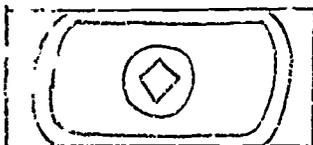
The percentage key is used for percentage calculations. So, all of you who can't remember to move the decimal place two places to the right to change a decimal to a percentage can relax. That is, if you can remember to depress the percent key. When the percent key is depressed, the operation is automatic.



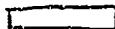
The positive storage entry key is used to store positive numbers for later recall and use.



The negative storage entry key is used to store negative numbers into the memory for later recall and use.



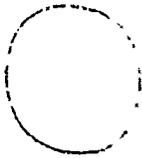
The storage recall key is used to recall storage contents into the display register while retaining the storage contents for further use.



The minus symbol identifies negative results in the display register.



The yellow indicator lamp denotes that the machine is switched on.



The green indicator lamp denotes that a value is held in the memory.



The red indicator lamp denotes the overflow of the 12-unit capacity. The calculator is ready for the calculation following the depression of the clear key for the arithmetic unit.

Let's review briefly the clear keys.

The C or display clear key is used to clear the display register only.

The clear key for the arithmetic unit, the C_A clear key, is used to clear the display register and the arithmetic unit (that is, numbers that have already been entered into the machine).

The C storage clear key is used to clear all accumulated values from the memory.

POST TEST

In the space provided, write one word that identifies the number beside the blank.

For example:

$$\begin{array}{r} 4 \\ +4 \\ \hline 8 \end{array} \quad \text{sum}$$

8 _____ A	5 _____ D	4 _____ G
<u>-4</u> _____ B	<u>x5</u> _____ E	<u>+4</u> _____ H
8 _____ C	25 _____ F	8 _____ sum

3	x	4	=	12
_____ I		_____ J		_____ K

25	÷	5	=	5
_____ L		_____ M		_____ N

		<u>6</u>	_____ P
<u>0</u> _____	4 /	<u>25</u>	_____ Q
		<u>24</u>	
		1	_____ R

ANSWERS TO POST TEST

- A. Minuend
- B. Subtrahend
- C. Remainder (sometimes called difference)
- D. Multiplicand
- E. Multiplier
- F. Product
- G. Augend
- H. Addend
- I. Multiplier
- J. Multiplicand
- K. Product
- L. Dividend
- M. Divisor
- N. Quotient
- O. Divisor
- P. Quotient
- Q. Dividend
- R. Remainder

~~123~~
~~338~~

DIRECTIONS

POST TEST FOR ROTARY CALCULATOR

You will be allowed 35 minutes. Work quickly. Work each problem one time. If you finish in less than 35 minutes, use the remaining time to check your work.

1. Round cents off to two decimal places.
2. Carry percentages out to two decimal places.
3. Round all products off to five decimal places.
4. Carry all division problems out to five places.
5. Punctuate all answers with commas and decimal points.
6. Indicate special notations in answers, such as Cr., %, etc.
7. Complete evaluation sheet.
8. Turn in time sheet.

339 125

~~236~~

POST TEST FOR ROTARY CALCULATOR

A-1

(1) 4.27
 3.15
 9.81
 2.71
 5.23
 7.06
 5.04
 2.41
 9.15
4.29

(2) 1.73
 2.13
 8.42
 5.16
 1.07
 3.16
 6.05
 7.35
 4.60
2.89

(3) 21.90
 16.75
 29.43
 54.98
 22.04
 13.05
 86.14
 91.58
 41.12
79.08

(4) 27.05
 41.59
 73.05
 24.09
 57.75
 15.67
 91.59
 24.02
 71.05
52.28

(5) 10.52
 32.07
 .32
 365.55
 2,104.61
 14.98
 52.60
 27.17
 407.90
1,230.17

(6) 16.87
- 3.47

(7) 77.42
- 20.91

(8) 357.93
- 17.05

(9) 406.82
- 720.52

(10) 374.42
-899.05

(11) 1198 + 457 =
 592 + 457 =
 981 + 457 =

(12) 541.5 x 14.08 =

(13) 47.3 x 17 =

(14) 89.3 x 23.3 =

(15) 19 x 133 x 407 =

(16) 18.2 x 1.05 x 16.4 =

(17) 185.54 ÷ 75.2 =

(18) 467.61 ÷ 12.22 =

(19) 442.57 ÷ 77 =

(20) Convert 321 feet to yards =

Rotary Calculator

(21) Convert 4,052 inches to feet =

(22) Accumulate:

14.15	x	74.253
3.02	x	4.12
84.3	x	.13
<u>506.02</u>	x	2.53

Interest On:

Answers

(23) \$470.75 at 2 1/2% =

(24) \$2,450.40 at 1 3/4% =

(25) \$1,865.00 at 8% =

(26) \$1,514.65 at 8 1/4% =

Find the percentage of Increase or Decrease

Previous	Current	Percentage + or -
(27) 50,190	11,642	
(28) 13,790	17,305	
(29) 4,924	4,761	
(30) 9,653	7,500	
(31) 30,546	19,673	

Find the net amount of the following:

(32) \$1,926.75 less 5%, 10%, 5% =

(33) \$ 842.00 less 25%, 15%, 20% =

(34) \$1,050.75 less 15%, 15%, 10% =

KEY

POST TEST FOR ROTARY CALCULATOR

A-1

(1)	4.27	(2)	1.73	(3)	21.90
	3.15		2.13		16.75
	9.81		8.42		29.43
	2.71		5.16		54.98
	5.23		1.07		22.04
	7.06		3.16		13.05
	5.04		6.05		86.14
	2.41		7.35		91.58
	9.15		4.60		41.12
	<u>4.29</u>		<u>2.89</u>		<u>79.08</u>
	53.12		42.56		456.07

(4)	27.05	(5)	10.52
	41.59		32.07
	73.05		.32
	24.09		365.55
	57.75		2,104.61
	15.67		14.98
	91.59		52.60
	24.02		27.17
	71.05		407.90
	<u>52.28</u>		<u>1,230.17</u>
	478.14		4,245.89

(6)	16.87	(7)	77.42	(8)	357.93	(9)	406.82
	<u>- 3.47</u>		<u>- 20.91</u>		<u>- 17.05</u>		<u>- 720.52</u>
	13.40		56.51		340.88		313.70 Cr.

(10)	374.42	(11)	1198 ÷ 457 = 1,655	(12)	541.5 x 14.08 = 7,624.32
	<u>-899.05</u>		592 + 457 = 1,049		
	524.63 Cr.		981 + 457 = 1,438		

(13) $47.3 \times 17 = 804.1$

(14) $89.3 \times 23.3 = 2,080.69$

(15) $19 \times 133 \times 407 = 1,028,489$

(16) $18.2 \times 1.05 \times 16.4 = 313.404$

(17) $185.54 \div 75.2 = 2.46728$

(18) $467.61 \div 12.22 = 38.26595$

(19) $442.57 \div 77 = 5.74766$

(20) Convert 321 feet to yards =

107 yards



Rotary Calculator

(21) Convert 4,052 inches to feet = 337 ft., 8 in.

(22) Accumulate:	Interest On:	Answers
14.15 x 74.253	(23) \$470.75 at 2 1/2% =	\$ 11.77
3.02 x 4.12	(24) \$2,450.40 at 1 3/4% =	42.88
84.3 x .13	(25) \$1,865.00 at 8% =	149.20
<u>506.02 x 2.53</u>	(26) \$1,514.65 at 8 1/4% =	124.96
2,354.31195		

Find the percentage of Increase or Decrease

Previous	Current	Percentage + or -
(27) 50,190	11,642	-76.8%
(28) 13,790	17,305	+25.48%
(29) 4,924	4,761	- 3.31%
(30) 9,653	7,500	-22.3%
(31) 30,546	19,673	-35.5%

Find the net amount of the following:

- (32) \$1,926.75 less 5%, 10%, 5% = \$1,565.00
- (33) \$ 842.00 less 25%, 15%, 20% = \$ 429.42
- (34) \$1,050.75 less 15%, 15%, 10% = \$ 683.25

POST TEST FOR ROTARY CALCULATOR

A-2

(1)	4.27	(2)	1.73	(3)	21.90
	3.15		2.13		16.75
	9.81		8.42		29.43
	2.71		5.16		54.98
	5.23		1.07		22.04
	8.09		5.41		17.03
	5.04		6.05		71.24
	3.21		3.75		91.58
	9.15		4.60		41.12
	<u>4.29</u>		<u>2.89</u>		<u>79.08</u>

(4)	27.05	(5)	10.52	(6)	15.95
	41.59		41.09		<u>- 4.34</u>
	73.05		.32		
	24.09		365.55		
	62.24		2,104.61	(7)	67.24
	16.57		14.98		<u>-30.26</u>
	91.59		45.20		
	24.02		27.17		
	71.05		407.90		
	<u>52.28</u>		<u>1,230.17</u>		

(8)	275.39	(9)	401.28	(10)	734.24
	<u>- 19.99</u>		<u>-840.25</u>		<u>-988.04</u>

(11) 1198 + 457 =
 592 + 457 =
 981 + 457 =

(12) 541.5 x 34.06 =

(13) 47.3 x 15 =

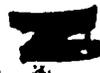
(14) 89.3 x 23.5 =

(15) 19 x 133 + 407 =

(16) 18.2 x 1.05 x 15.4 =

(17) 185.54 ÷ 61.4 =

(18) 467.61 ÷ 12.03 =



(19) $442.57 \div 75 =$

(20) Convert 321 feet to yards =

(21) Convert 4,078 inches to feet =

(22) Accumulate:

$$\begin{array}{r} 14.15 \times 74.253 \\ 3.02 \times 4.21 \\ 85.2 \times .13 \\ \hline 506.02 \times 3.42 \end{array}$$

Interest On:

Answer

(23) \$420.35 at 2 1/2% =

(24) \$4,071.50 at 1 3/4% =

(25) \$1,600 at 8% =

(26) \$2,400 at 8 1/4% =

Find the percentage of Increase or Decrease

<u>Previous</u>	<u>Current</u>	<u>Percentage + or -</u>
(27) 50,190	19,721	
(28) 13,790	14,750	
(29) 4,924	4,791	
(30) 9,653	7,300	
(31) 30,546	27,550	

Find the net amount of the following:

(32) \$2,926.75 less 5%, 10%, 13% =

(33) \$1,752.00 less 25%, 15%, 20% =

(34) \$1,050.75 less 25%, 15%, 10% =

(1)	4.27	(2)	1.73	(3)	21.90
	3.15		2.13		16.75
	9.81		8.42		29.43
	2.71		5.16		54.98
	5.23		1.07		22.04
	8.09		5.41		17.03
	5.04		6.05		71.24
	3.21		3.75		91.58
	9.15		4.60		41.12
	<u>4.29</u>		<u>2.89</u>		<u>79.08</u>
	54.95		41.21		445.15
(4)	27.05	(5)	10.52	(6)	15.95
	41.59		41.09		<u>- 4.34</u>
	73.05		.32		11.61
	24.09		365.55		
	62.24		2,104.61	(7)	67.24
	16.57		14.98		<u>-30.26</u>
	91.59		45.20		36.98
	24.02		27.17		
	71.05		407.90		
	<u>52.28</u>		<u>1,230.17</u>		
	483.53		4,247.51		
(8)	275.39	(9)	401.28	(10)	734.24
	<u>- 19.99</u>		<u>-840.25</u>		<u>-988.04</u>
	255.40		438.97 Cr.		253.80 Cr.
(11)	1198 + 457 = 1,655	(12)	541.5 x 34.06 = 18,443.49		
	592 + 457 = 1,049				
	981 + 457 = 1,438				
(13)	47.3 x 15 = 709.5	(14)	89.3 x 23.5 = 2,098.55		
(15)	19 x 133 x 407 = 1,028,489	(16)	18.2 x 1.05 x 15.4 = 294.294		
(17)	185.54 ÷ 61.4 = 3.02182	(18)	467.61 ÷ 12.03 = 38.87032		

(19) $442.57 \div 75 = 5.90093$

(20) Convert 321 feet to yards = 107 yds.

(21) Convert 4,078 inches to feet = 339 ft., 10 inches

(22) Accumulate:	Interest On:	Answer
14.15×74.253	(23) \$420.35 at 2 1/2% =	\$10.51
3.02×4.21	(24) \$4,071.50 at 1 3/4% =	\$71.25
$85.2 \times .13$	(25) \$1,654.00 at 8% =	\$132.32
<u>506.02×3.42</u>	(26) \$2,421.60 at 8 1/4% =	\$199.78
2,805.05855		

Find the percentage of Increase or Decrease

<u>Previous</u>	<u>Current</u>	<u>Percentage + or -</u>
(27) 50,190	19,721	-60.70%
(28) 13,790	14,750	+ 6.96%
(29) 4,924	4,791	- 2.70%
(30) 9,653	7,300	-24.37%
(31) 30,546	27,550	- 9.80%

Find the net amount of the following:

(32) \$2,926.75 less 5%, 10%, 13% = \$2,177.06

(33) \$1,752.00 less 25%, 15%, 20% = \$ 893.52

(34) \$1,050.75 less 25%, 15%, 10% = \$ 602.87

POST TEST FOR ROTARY CALCULATOR

A-3

(1) 4.27
 3.15
 9.81
 2.71
 5.23
 8.09
 5.04
 4.21
 9.15
4.29

(2) 1.73
 2.13
 8.42
 5.16
 1.07
 1.45
 6.05
 7.35
 4.60
2.39

(3) 21.90
 16.75
 29.43
 54.98
 22.04
 31.06
 71.24
 91.58
 41.12
79.08

(4) 27.05
 41.59
 73.05
 42.08
 62.24
 15.67
 91.59
 24.02
 71.05
52.28

(5) 10.52
 14.08
 .32
 365.55
 2,104.61
 14.98
 52.60
 27.17
 407.90
1,230.17

(6) 15.95
- 4.37

(7) 76.42
-20.91

(8) 275.39
- 12.25

(9) 510.82
-720.52

(10) 753.42
-899.05

(11) 1198 + 489 =
 592 + 489 =
 981 + 489 =

(12) 541.5 x 27.07 =

(13) 41.7 x 18 =

(14) 89.3 x 23.3 =

(15) 19 x 221 x 506 =

(16) 18.2 x 1.02 x 17.5 =

(17) 185.54 ÷ 75.5 =

(18) 467.61 ÷ 15.02 =

(19) 442.57 ÷ 73 =

(20) Convert 172 feet to yards =



(21) Convert 4,095 inches to feet =

(22) Accumulate: Interest On: Answer

41.51 x 74.253
3.02 x 4.21
85.2 x .13
506.02 x 2.53

(23) \$614.23 at 2 1/2% =

(24) \$3,450.20 at 1 3/4% =

(25) \$1,793.00 at 8% =

(26) \$4,301.60 at 8 1/4% =

Find the percentage of Increase or Decrease:

<u>Previous</u>	<u>Current</u>	<u>Percentage + or -</u>
(27) 50,190	11,107	
(28) 13,790	14,402	
(29) 4,924	3,897	
(30) 9,653	7,400	
(31) 30,546	27,543	

Find the net amount of the following:

(32) \$1,762.70 less 5%, 10%, 13% =

(33) \$ 590.00 less 25%, 15%, 20% =

(34) \$1,062.25 less 5%, 15%, 10% =

349

136


136

- | | | | | | |
|------|---|------|----------------------------|------|--------------------|
| (1) | 4.27 | (2) | 1.73 | (3) | 21.90 |
| | 3.15 | | 2.13 | | 16.75 |
| | 9.81 | | 8.42 | | 29.43 |
| | 2.71 | | 5.16 | | 54.98 |
| | 5.23 | | 1.07 | | 22.04 |
| | 8.09 | | 1.45 | | 31.06 |
| | 5.04 | | 6.05 | | 71.24 |
| | 4.21 | | 7.35 | | 91.58 |
| | 9.15 | | 4.60 | | 41.12 |
| | <u>4.29</u> | | <u>2.89</u> | | <u>79.08</u> |
| | 55.95 | | 40.85 | | 459.18 |
| (4) | 27.05 | (5) | 10.52 | | |
| | 41.59 | | 14.08 | | |
| | 73.05 | | .32 | | |
| | 42.08 | | 365.55 | | |
| | 62.24 | | 2,104.61 | | |
| | 15.67 | | 14.98 | | |
| | 91.59 | | 52.60 | | |
| | 24.02 | | 27.17 | | |
| | 71.05 | | 407.90 | | |
| | <u>52.28</u> | | <u>1,230.17</u> | | |
| | 500.62 | | 4,227.90 | | |
| (6) | 19.95 | (7) | 76.42 | (8) | 275.39 |
| | <u>- 4.37</u> | | <u>-20.91</u> | | <u>- 12.25</u> |
| | 11.58 | | 55.51 | | 263.14 |
| (9) | 510.82 | (10) | 753.42 | (11) | 1198 + 489 = 1,687 |
| | <u>-720.52</u> | | <u>-899.05</u> | | 592 + 489 = 1,081 |
| | 209.70 Cr. | | 145.63 Cr. | | 981 + 489 = 1,470 |
| (12) | 541.5 x 27.07 = 14,658.405 | (13) | 41.7 x 18 = 750.6 | | |
| (14) | 89.3 x 23.3 = 2,080.69 | (15) | 19 x 221 x 506 = 2,124,694 | | |
| (16) | 18.2 x 1.02 x 17.5 = 324.87 | (17) | 185.54 ÷ 75.5 = 2.45748 | | |
| (18) | 467.61 ÷ 15.02 = 31.13249 | (19) | 442.57 ÷ 73 = 6.0626 | | |
| (20) | Convert 172 feet to yards = 57 yds, 1 ft. | | | | |

(21) Convert 4,095 inches to feet = 341 ft., 3 in.

Accumulate:	Interest On:	Answer
41.51 x 74.253	(23) \$614.23 at 2 1/2% =	\$15.36
3.02 x 4.21	(24) \$3,450.20 at 1 3/4% =	\$60.38
85.2 x .13	(25) \$1,793.00 at 8% =	\$143.44
<u>506.02 x 2.53</u>	(26) \$4,301.60 at 8 1/4% =	\$354.88
4,386.26283		

Find the percentage of Increase or Decrease:

<u>Previous</u>	<u>Current</u>	<u>Percentage + or -</u>
(27) 50,190	11,107	- 77.87%
(28) 13,790	14,402	+ 4.44%
(29) 4,924	3,897	- 20.86%
(30) 9,653	7,400	- 23.34%
(31) 30,546	27,543	- 9.83%

Find the net amount of the following:

- (32) \$1,762.70 less 5%, 10%, 13% = \$1,311.18
(33) \$ 590.00 less 25%, 15%, 20% = \$ 300.90
(34) \$1,062.25 less 5%, 15%, 10% = \$ 711.99

DIRECTIONS

POST TEST FOR TEN-KEY CALCULATOR

You will be allowed 45 minutes (55 minutes if working on a Victor).
Work quickly. Work each problem one time. If you finish in less than
45 or 55 minutes, use the remaining time to check your work.

1. Round cents off to two decimal places.
2. Carry percentages out to two decimal places.
3. Round all products off to five decimal places.
4. Carry all division problems out to five decimal places.
5. Punctuate all answers with commas and decimal points.
6. Indicate special notations in answers; for example, Cr., %, etc.
7. Turn in paper tape.
8. Complete evaluation sheet.
9. Turn in time sheet.

POST TEST FOR TEN-KEY CALCULATOR

B-1

$$\begin{array}{r} (1) \quad 7.84 \\ \quad 3.241 \\ \quad 53.98 \\ \quad 4.07 \\ \hline \quad 2.421 \end{array}$$

$$\begin{array}{r} (2) \quad .4276 \\ \quad - 3.66 \\ \quad 15.988 \\ \quad .525 \\ \hline \quad -13.3 \end{array}$$

$$\begin{array}{r} (3) \quad 4.875 \\ \quad \underline{.65} \\ \quad \quad \quad \text{ST} \\ (4) \quad \quad 8.755 \\ \quad \quad \underline{18.53} \\ \quad \quad \quad \quad \quad \text{T} \end{array}$$

$$\begin{array}{r} (5) \quad 453.75 \\ \quad \underline{-205.98} \end{array}$$

$$\begin{array}{r} (6) \quad 650.37 \\ \quad \underline{-891.45} \end{array}$$

$$\begin{array}{r} (7) \quad 2,319.40 \\ \quad \underline{-2,145.91} \end{array}$$

$$\begin{array}{r} (8) \quad 4,381.04 \\ \quad \underline{-6,762.10} \end{array}$$

$$\begin{array}{r} (9) \quad 545.25 \\ \quad 545.25 \\ \quad 545.25 \\ \quad 51.20 \\ \quad 51.20 \\ \hline \quad 51.20 \end{array}$$

$$\begin{array}{r} (10) \quad 1,330.77 \\ \quad 1,330.77 \\ \quad 1,330.77 \\ \quad 625.40 \\ \quad 625.40 \\ \hline \quad 1,346.67 \end{array}$$

$$(11) \quad 591 \times 75 =$$

$$(12) \quad 64 \times 28 =$$

$$(13) \quad 31 \times 37 =$$

$$(14) \quad 736 \times 59 =$$

$$(15) \quad 44 \times 72 =$$

$$(16) \quad 16.3 \times 3.86 =$$

$$(17) \quad 44 \times 25.2 =$$

$$(18) \quad 5.27 \times 19.33 =$$

$$(19) \quad 7.83 \times 22.3 =$$

$$(20) \quad 14.39 \times 4.3 =$$

$$(21) \quad 30 \times 25 \times 22 \times 12 =$$

$$(22) \quad 122 \times 14 \times 23 =$$

$$(23) \quad 75 \times 31 \times 78 =$$

$$(24) \quad 20 \times 24 \times 25 \times 11 =$$

$$(25) \quad 64 \times 45 \times 71 =$$

141

353

$$\begin{array}{l} (26) \quad 17 \times 92 \\ \quad \quad 73 \times 54 \\ \quad \quad \underline{45 \times 49} \end{array}$$

$$\begin{array}{l} (27) \quad 7.76 \times 4.9 \\ \quad \quad 89.42 \times .54 \\ \quad \quad \underline{5.3 \times 3.7} \end{array}$$

$$\begin{array}{l} (28) \quad 5.71 \times 7.24 \\ \quad \quad .54 \times 9.7 \\ \quad \quad \underline{9.51 \times 75.2} \end{array}$$

$$(29) \quad 136 \text{ lbs. at } \$.95 =$$

$$(30) \quad 40 \text{ lbs. at } \$.95 =$$

$$(31) \quad 61 \text{ lbs. at } \$.95 =$$

$$(32) \quad 87 \text{ lbs. at } \$.95 =$$

$$(33) \quad 58 \text{ lbs. at } \$.95 =$$

$$(34) \quad 201 \text{ doz. at } \$1.75 =$$

$$(35) \quad 63 \text{ doz. at } \$1.75 =$$

$$(36) \quad 16 \text{ doz. at } \$1.75 =$$

$$(37) \quad 433 \text{ doz. at } \$1.75 =$$

$$(38) \quad 10 \text{ doz. at } \$1.75 =$$

$$(39) \quad 2,512 \div 34 =$$

$$(40) \quad 786 \div 45 =$$

$$(41) \quad 3,689 \div 24 =$$

$$(42) \quad 9,864 \div 176 =$$

$$(43) \quad 11,903 \div 306 =$$

$$(44) \quad 107.542 \div 75 =$$

$$(45) \quad 29.75 \div 5.5 =$$

$$(46) \quad 13.15 \div .75 =$$

$$(47) \quad 65 \div 595.25 =$$

$$(48) \quad 21 \div 30.55 =$$

SALES COMPARISON

<u>MONTH</u>	<u>LAST YEAR</u>	<u>THIS YEAR</u>	<u>AMOUNT OF INCREASE OR DECREASE</u>	<u>% + or -</u>
January	\$ 13,600	\$ 15,524		
February	8,570	10,307		
March	14,547	25,302		
April	14,870	15,100		
May	21,740	18,423		
June	41,230	40,701		
July	16,932	21,903		
August	17,452	24,807		
September	21,704	15,432		
October	31,504	29,804		
November	25,801	30,745		
December	59,719	30,985		

KEY

POST TEST FOR TEN-KEY CALCULATOR

B-1

(1)	7.84 3.241 53.98 4.07 <u>2.421</u> 71.552	(2)	.4276 - 3.66 15.988 .525 <u>-13.3</u> .0194 Cr.	(3)	4.875 <u>.65</u> 5.525 ST 8.755 <u>18.53</u> 32.81 T	(5)	453.75 <u>-205.98</u> 247.77
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(6)	650.37 <u>-891.45</u> 241.08 Cr.	(7)	2,319.40 <u>-2,145.91</u> 173.49	(8)	4,381.04 <u>-6,762.10</u> 2,381.06 Cr.	(9)	545.25 545.25 545.25 51.20 51.20 <u>51.20</u> 1,789.35
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(10)	1,330.77 1,330.77 1,330.77 625.40 625.40 <u>1,346.67</u> 6,589.78	(11)	591 x 75 = 44,325	(12)	64 x 28 = 1,792
		(13)	31 x 37 = 1,147	(14)	736 x 59 = 43,424

(15)	44 x 72 = 3,168	(16)	16.3 x 3.86 = 62.918
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(17)	44 x 25.2 = 1,108.8	(18)	5.27 x 19.33 = 101.8691
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(19)	7.83 x 22.3 = 174.609	(20)	14.39 x 4.3 = 61.877
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(21)	30 x 25 x 22 x 12 = 198,000	(22)	122 x 14 x 23 = 39,284
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(23)	75 x 31 x 78 = 181,350	(24)	20 x 24 x 25 x 11 = 132,000
------	------------------------	------	-----------------------------

(25)	64 x 45 x 71 = 204,480
------	------------------------

(26) 17 x 92 73 x 54 <u>45 x 49</u> 7,711	(27) 7.76 x 4.9 89.42 x .54 <u>5.3 x 3.7</u> 105.9208	(28) 5.71 x 7.24 .54 x 9.7 <u>9.51 x 75.2</u> 761.7304
--	--	---

(29) 136 lbs. at \$.95 = \$129.20	(30) 40 lbs. at \$.95 = \$38.00
(31) 61 lbs. at \$.95 = \$57.95	(32) 87 lbs. at \$.95 = \$82.65
(33) 58 lbs. at \$.95 = \$55.10	(34) 201 doz. at \$1.75 = \$351.75
(35) 63 doz. at \$1.75 = \$110.25	(36) 16 doz. at \$1.75 = \$28.00
(37) 433 doz. at \$1.75 = \$757.75	(38) 10 doz. at \$1.75 = \$17.50
(39) 2,512 ÷ 34 = 73.88235	(40) 786 ÷ 45 = 17.46666
(41) 3,689 ÷ 24 = 153.70833	(42) 9,864 ÷ 176 = 56.04545
(43) 11,903 ÷ 306 = 38.89869	(44) 107.542 ÷ 75 = 1.43389
(45) 29.75 ÷ 5.5 = 5.40909	(46) 13.15 ÷ .75 = 17.53333
(47) 65 ÷ 595.25 = .10919	(48) 21 ÷ 30.55 = .68739

SALES COMPARISON

MONTH	LAST YEAR	THIS YEAR	AMOUNT OF		% + or -
			INCREASE	OR DECREASE	
January	\$ 13,600	\$ 15,524	\$1,924		+14.14%
February	8,570	10,307	1,737		+20.26%
March	14,547	25,302	10,755		+73.93%
April	14,870	15,100	230		+ 1.54%
May	21,740	18,423		\$3,317	-15.25%
June	41,230	40,701		529	- 1.28%
July	16,932	21,903	4,971		+29.35%
August	17,452	24,807	7,355		+42.14%
September	21,704	15,432		6,272	-28.89%
October	31,504	29,804		1,700	- 5.39%
November	25,801	30,745	4,944		+19.16%
December	59,719	30,985		28,734	-48.12%

POST TEST FOR TEN-KEY CALCULATOR

B-2

$$\begin{array}{r} (1) \quad 3.87 \\ \quad 2.213 \\ \quad 52.43 \\ \quad 5.01 \\ \hline \quad 1.004 \end{array}$$

$$\begin{array}{r} (2) \quad .3765 \\ \quad -4.33 \\ \quad 15.983 \\ \quad .121 \\ \hline \quad -12.2 \end{array}$$

$$\begin{array}{r} (3) \quad 2.857 \\ \quad .15 \\ \hline \quad \text{ST} \end{array}$$

$$\begin{array}{r} (5) \quad 256.38 \\ \quad -450.98 \\ \hline \end{array}$$

$$\begin{array}{r} (4) \quad 6.897 \\ \quad 18.20 \\ \hline \quad \text{T} \end{array}$$

$$\begin{array}{r} (6) \quad 620.27 \\ \quad -819.50 \\ \hline \end{array}$$

$$\begin{array}{r} (7) \quad 2,812.10 \\ \quad -1,254.81 \\ \hline \end{array}$$

$$\begin{array}{r} (8) \quad 1,267.04 \\ \quad -2,384.07 \\ \hline \end{array}$$

$$\begin{array}{r} (9) \quad 233.51 \\ \quad 233.51 \\ \quad 233.51 \\ \quad 92.58 \\ \quad 92.58 \\ \hline \quad 92.58 \end{array}$$

$$\begin{array}{r} (10) \quad 1,082.67 \\ \quad 1,082.67 \\ \quad 1,082.67 \\ \quad 407.02 \\ \quad 407.02 \\ \hline \quad 1,082.67 \end{array}$$

$$(11) \quad 519 \times 94 =$$

$$(12) \quad 31 \times 58 =$$

$$(13) \quad 54 \times 87 =$$

$$(14) \quad 207 \times 32 =$$

$$(15) \quad 23 \times 16 =$$

$$(16) \quad 14.3 \times 2.43 =$$

$$(17) \quad 53 \times 92.3 =$$

$$(18) \quad 2.36 \times 14.33 =$$

$$(19) \quad 1.64 \times 1.2 =$$

$$(20) \quad 15.22 \times 4.3 =$$

$$(21) \quad 51 \times 12 \times 98 \times 22 =$$

$$(22) \quad 82 \times 46 \times 221 =$$

$$(23) \quad 112 \times 31 \times 43 =$$

$$(24) \quad 23 \times 18 \times 12 \times 3 =$$

$$(25) \quad 821 \times 54 \times 71 =$$

$$\begin{array}{r} (26) \quad 61 \times 92 \\ \quad 73 \times 54 \\ \quad 57 \times 49 \end{array}$$

$$\begin{array}{r} (27) \quad 6.63 \times 8.2 \\ \quad 12.89 \times .33 \\ \quad 3.4 \times 8.5 \\ \hline \end{array}$$

$$\begin{array}{r} (28) \quad 5.17 \times 8.75 \\ \quad .54 \times 8.8 \\ \quad 9.15 \times 75.2 \\ \hline \end{array}$$

(29) 751 lbs. @ \$1.59 =

(30) 30 lbs. @ \$1.59 =

(31) 110 lbs. @ \$1.59 =

(32) 97 lbs. @ \$1.59 =

(33) 711 lbs. @ \$1.59 =

(34) 202 doz. @ \$.57 =

(35) 217 doz @ \$.57 =

(36) 91 doz. @ \$.57 =

(37) 223 doz. @ \$.57 =

(38) 401 doz. @ \$.57 =

(39) 1,211 ÷ 83 =

(40) 613 ÷ 66 =

(41) 1,824 ÷ 71 =

(42) 5,243 ÷ 871 =

(43) 16,201 ÷ 404 =

(44) 601.425 ÷ 57 =

(45) 81.94 ÷ 1.7 =

(46) 11.12 ÷ .56 =

(47) 23 ÷ 285.52 =

(48) 12 ÷ 20.77 =

SALES COMPARISON

MONTH	LAST YEAR	THIS YEAR	AMOUNT OF INCREASE OR DECREASE	% + OR -
January	\$ 75,420	\$ 64,221		
February	80,321	82,409		
March	91,304	79,421		
April	86,302	83,401		
May	90,000	97,320		
June	49,620	69,421		
July	89,417	80,724		
August	79,324	90,719		
September	87,901	90,421		
October	89,721	92,400		
November	90,700	91,321		
December	90,400	90,000		

258 146

(1)	3.87 2.213 52.43 5.01 <u>1.004</u> 64.527	(2)	.3765 -4.33 15.983 .121 <u>-12.2</u> .0495 Cr.	(3)	2.857 .15 <u>3.007</u> ST 6.897 <u>18.20</u> 28.104 T	(5)	256.38 <u>-450.98</u> 194.6 Cr.
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(6)	620.27 <u>-819.50</u> Cr.	(7)	2,812.10 <u>-1,254.31</u> 1,557.79	(8)	1,267.04 <u>-2,384.07</u> 1,117.03 Cr.	(9)	233.51 233.51 233.51 92.58 92.58 <u>92.58</u> 978.27
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(10)	1,082.67 1,082.67 1,082.67 407.02 407.02 <u>1,082.67</u> 5,144.72	(11)	519 x 94 = 48,786	(12)	31 x 58 = 1,798
		(13)	54 x 87 = 4,698	(14)	207 x 32 = 6,624
		(15)	23 x 16 = 368	(16)	14.3 x 2.43 = 34.749

(17)	53 x 92.3 = 4,891.9	(18)	2.36 x 14.33 = 33.8188
(19)	1.64 x 11.2 = 18.368	(20)	15.22 x 4.3 = 65.446
(21)	51 x 12 x 98 x 22 = 1,319,472	(22)	82 x 46 x 221 = 833,612
(23)	112 x 31 x 43 = 149,296	(24)	23 x 18 x 12 x 3 = 14,904
(25)	821 x 54 x 71 = 3,147,714	(26)	61 x 92 73 x 54 <u>57 x 49</u> 12,347

(27)	6.63 x 8.2 12.89 x .33 <u>3.4 x 8.5</u> 87.5197	(28)	5.17 x 8.75 .54 x 8.8 <u>9.15 x 75.2</u> 738.0695
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359

- (29) 751 lbs. @ \$1.59 = \$1,194.09 (30) 30 lbs. @ \$1.59 = \$47.70
 (31) 110 lbs. @ \$1.59 = \$174.90 (32) 97 lbs. @ \$1.59 = \$154.23
 (33) 711 lbs. @ \$1.59 = \$1,130.49 (34) 202 doz. @ \$.57 = \$115.14
 (35) 217 doz @ \$.57 = \$123.69 (36) 91 doz. @ \$.57 = \$51.87
 (37) 223 doz. @ \$.57 = \$127.11 (38) 401 doz. @ \$.57 = \$228.57
 (39) $1,211 \div 83 = 14.59036$ (40) $613 \div 66 = 9.28787$
 (41) $1,824 \div 71 = 25.69014$ (42) $5,243 \div 871 = 6.01951$
 (43) $16,201 \div 404 = 40.10148$ (44) $601.425 \div 57 = 10.55131$
 (45) $81.94 \div 1.7 = 48.2$ (46) $11.12 \div .56 = 19.85714$
 (47) $23 \div 285.52 = 0.08055$ (48) $12 \div 20.77 = .57775$

SALES COMPARISON

MONTH	LAST YEAR	THIS YEAR	AMOUNT OF INCREASE OR DECREASE	% + OR -
January	\$ 75,420	\$ 64,221	\$11,199	-14.86%
February	80,321	82,409	\$ 2,088	+ 2.59%
March	91,304	79,421	11,883	-13.01%
April	86,302	83,401	2,901	- 3.36%
May	90,000	97,320	7,320	+ 8.13%
June	49,620	69,421	19,801	+39.9 %
July	89,417	80,724	8,693	- 9.72%
August	79,324	90,719	11,395	+14.36%
September	87,901	90,421	2,520	+ 2.86%
October	89,721	92,400	2,679	+ 2.98%
November	90,700	91,321	621	+ .68%
December	90,400	90,000	400	- .44%

~~CONFIDENTIAL~~ 354A

POST TEST FOR TEN KEY CALCULATOR

B-3

$$\begin{array}{r} (1) \quad 7.84 \\ \quad 3.241 \\ 53.98 \\ \quad 7.04 \\ \hline \quad 3.531 \end{array}$$

$$\begin{array}{r} (2) \quad .5267 \\ \quad - 3.66 \\ 15.988 \\ \quad .435 \\ \hline \quad -13.3 \end{array}$$

$$\begin{array}{r} (3) \quad 4.785 \\ \quad \quad .35 \\ \hline \quad \quad ST \end{array}$$

$$\begin{array}{r} (4) \quad 8.755 \\ \quad 18.53 \\ \hline \quad \quad T \end{array}$$

$$\begin{array}{r} (5) \quad 435.54 \\ \quad -205.98 \\ \hline \end{array}$$

$$\begin{array}{r} (6) \quad 650.37 \\ \quad -891.45 \\ \hline \end{array}$$

$$\begin{array}{r} (7) \quad 3,191.30 \\ \quad -2,145.91 \\ \hline \end{array}$$

$$\begin{array}{r} (8) \quad 3,248.70 \\ \quad -4,276.10 \\ \hline \end{array}$$

$$\begin{array}{r} (9) \quad 545.25 \\ \quad 545.25 \\ \quad 545.25 \\ \quad 16.44 \\ \quad 16.44 \\ \hline \quad 16.44 \end{array}$$

$$\begin{array}{r} (10) \quad 1,330.77 \\ \quad 1,330.77 \\ \quad 1,330.77 \\ \quad 640.70 \\ \quad 640.70 \\ \hline \quad 1,346.67 \end{array}$$

(11) $419 \times 94 =$

(12) $55 \times 42 =$

(13) $31 \times 47 =$

(14) $721 \times 95 =$

(15) $55 \times 63 =$

(16) $18.2 \times 4.16 =$

(17) $14 \times 25.2 =$

(18) $2.57 \times 17.22 =$

(19) $3.87 \times 33.2 =$

(20) $19.45 \times 3.4 =$

(21) $30 \times 15 \times 33 \times 12 =$

(22) $122 \times 41 \times 32 =$

(23) $57 \times 31 \times 87 =$

(24) $30 \times 42 \times 25 \times 11 =$

(25) $64 \times 45 \times 71 =$

$$\begin{array}{r} (26) \quad 17 \times 92 \\ \quad 73 \times 45 \\ \quad 57 \times 49 \\ \hline \end{array}$$

$$\begin{array}{r} (27) \quad 7.76 \times 4.9 \\ 89.42 \times .45 \\ \hline 5.3 \times 6.9 \end{array}$$

$$\begin{array}{r} (28) \quad 5.71 \times 8.75 \\ .54 \times 9.8 \\ \hline 9.51 \times 75.2 \end{array}$$

- | | |
|---------------------------|---------------------------|
| (29) 136 lbs. at \$2.05 = | (30) 40 lbs. at \$2.05 = |
| (31) 61 lbs. at \$2.05 = | (32) 87 lbs. at \$2.05 = |
| (33) 58 lbs. at \$2.05 = | (34) 201 lbs. at \$.95 = |
| (35) 63 lbs. at \$.95 = | (36) 16 doz. at \$.95 = |
| (37) 433 doz. at \$.95 = | (38) 10 doz. at \$.95 = |
| (39) $2,512 \div 47 =$ | (40) $786 \div 47 =$ |
| (41) $3,689 \div 91 =$ | (42) $9,864 \div 581 =$ |
| (43) $11,903 \div 704 =$ | (44) $107.542 \div 45 =$ |
| (45) $29.75 \div 3.2 =$ | (46) $13.15 \div .34 =$ |
| (47) $44 \div 595.25 =$ | (48) $15 \div 30.55 =$ |

SALES COMPARISON

<u>MONTH</u>	<u>LAST YEAR</u>	<u>THIS YEAR</u>	<u>AMOUNT OF INCREASE OR DECREASE</u>	<u>% + OR -</u>
January	\$ 13,400	\$ 16,575		
February	7,450	12,602		
March	13,457	21,233		
April	13,780	14,900		
May	31,470	19,429		
June	31,320	50,802		
July	17,823	19,905		
August	16,542	15,942		
September	22,407	18,702		
October	33,405	27,408		
November	24,702	30,435		
December	47,618	40,536		

$$\begin{array}{r} (1) \quad 7.84 \\ \quad 3.241 \\ 53.98 \\ \quad 7.04 \\ \hline \quad 3.531 \\ 15 \ 632 \end{array}$$

$$\begin{array}{r} (2) \quad .5267 \\ - 3.66 \\ \hline 15.988 \\ \quad .435 \\ \hline -13.3 \\ \hline .0103 \text{ Cr.} \end{array}$$

$$\begin{array}{r} (3) \quad 4.785 \\ \quad .35 \\ \hline 5.135^{\text{ST}} \\ (4) \quad 8.755 \\ \quad 18.53 \\ \hline 32.42 \text{ T} \end{array}$$

$$\begin{array}{r} (5) \quad 435.54 \\ -205.98 \\ \hline 229.56 \end{array}$$

$$\begin{array}{r} (6) \quad 650.37 \\ -891.45 \\ \hline 241.08 \text{ Cr.} \end{array}$$

$$\begin{array}{r} (7) \quad 3,191.30 \\ -2,145.91 \\ \hline 1,045.39 \end{array}$$

$$\begin{array}{r} (8) \quad 3,248.70 \\ -4,276.10 \\ \hline 1,027.40 \text{ Cr.} \end{array}$$

$$\begin{array}{r} (9) \quad 545.25 \\ 545.25 \\ 545.25 \\ \quad 16.44 \\ \quad 16.44 \\ \quad 16.44 \\ \hline 1,685.07 \end{array}$$

$$\begin{array}{r} (10) \quad 1,330.77 \\ 1,330.77 \\ 1,330.77 \\ \quad 640.70 \\ \quad 640.70 \\ \hline 1,346.67 \\ 6,620.38 \end{array}$$

$$(11) \quad 419 \times 94 = 39,386$$

$$(12) \quad 55 \times 42 = 2,310$$

$$(13) \quad 31 \times 47 = 1,457$$

$$(14) \quad 721 \times 95 = 68,495$$

$$(15) \quad 55 \times 63 = 3,465$$

$$(16) \quad 18.2 \times 4.16 = 75.712$$

$$(17) \quad 14 \times 25.2 = 352.8$$

$$(18) \quad 2.57 \times 17.22 = 44.2554$$

$$(19) \quad 3.87 \times 33.2 = 128.484$$

$$(20) \quad 19.45 \times 3.4 = 66.13$$

$$(21) \quad 30 \times 15 \times 33 \times 12 = 178,200$$

$$(22) \quad 122 \times 41 \times 32 = 160,064$$

$$(23) \quad 57 \times 31 \times 87 = 153,729$$

$$(24) \quad 30 \times 42 \times 25 \times 11 = 346,500$$

$$(25) \quad 64 \times 45 \times 71 = 204,480$$

$$\begin{array}{r} (26) \quad 17 \times 92 \\ \quad 73 \times 45 \\ \quad 57 \times 49 \\ \hline 7,642 \end{array}$$

$$\begin{array}{r} (27) \quad 7.76 \times 4.9 \\ 89.42 \times .45 \\ \hline 5.3 \times 6.9 \\ \hline 114 \ 833 \end{array}$$

$$\begin{array}{r} (28) \quad 5.71 \times 8.75 \\ \quad .54 \times 9.8 \\ \hline 9.51 \times 75.2 \\ \hline 770.4065 \end{array}$$

- | | |
|------------------------------------|------------------------------------|
| (29) 136 lbs. at \$2.05 = \$278.80 | (30) 40 lbs. at \$2.05 = \$ 82.00 |
| (31) 61 lbs. at \$2.05 = \$125.05 | (32) 87 lbs. at \$2.05 = \$178.35 |
| (33) 58 lbs. at \$2.05 = \$118.90 | (34) 201 lbs. at \$.95 = \$190.95 |
| (35) 63 lbs. at \$.95 = \$ 59.85 | (36) 16 doz. at \$.95 = \$ 15.20 |
| (37) 433 doz. at \$.95 = \$411.35 | (38) 10 doz. at \$.95 = \$ 9.50 |
| (39) $2,512 \div 47 = 53.4468$ | (40) $786 \div 47 = 16.7234$ |
| (41) $3,689 \div 91 = 40.53846$ | (42) $9,864 \div 581 = 16.97762$ |
| (43) $11,903 \div 704 = 16.90767$ | (44) $107.542 \div 45 = 2.38982$ |
| (45) $29.75 \div 3.2 = 9.29687$ | (46) $13.15 \div .34 = 38.67647$ |
| (47) $44 \div 595.25 = .0739$ | (48) $15 \div 30.55 = .49099$ |

SALES COMPARISON

<u>MONTH</u>	<u>LAST YEAR</u>	<u>THIS YEAR</u>	<u>AMOUNT OF INCREASE OR DECREASE</u>	<u>% + OR -</u>
January	\$ 13,400	\$ 16,575	\$ 3,175	+23.69%
February	7,450	12,602	5,152	+69.15%
March	13,457	21,233	7,776	+57.78%
April	13,780	14,900	1,120	+ 8.12%
May	31,470	19,429	\$12,041	-38.26%
June	31,320	50,802	19,482	+62.2 %
July	17,823	19,995	2,082	+11.68%
August	16,542	15,942	600	- 3.62%
September	22,407	18,702	3,705	-16.53%
October	33,405	27,408	5,997	-17.95%
November	24,702	30,435	5,733	+23.2 %
December	47,618	40,536	7,082	-14.87%



POST TEST FOR TEN-KEY CALCULATOR

B-4

$$\begin{array}{r} (1) \quad 7.84 \\ \quad 3.241 \\ 53.98 \\ \quad 4.07 \\ \hline \underline{\underline{4.321}} \end{array}$$

$$\begin{array}{r} (2) \quad .5267 \\ - 3.66 \\ 14.889 \\ \quad .525 \\ \hline \underline{\underline{-13.3}} \end{array}$$

$$\begin{array}{r} (3) \quad 4.875 \\ \quad \underline{\underline{.35}} \\ \text{ST} \end{array}$$

$$\begin{array}{r} (4) \quad 7.645 \\ \quad \underline{\underline{18.53}} \\ \text{T} \end{array}$$

$$\begin{array}{r} (5) \quad 445.75 \\ \quad \underline{\underline{-205.98}} \end{array}$$

$$\begin{array}{r} (6) \quad 650.74 \\ \quad \underline{\underline{-891.45}} \end{array}$$

$$\begin{array}{r} (7) \quad 2,271.24 \\ \quad \underline{\underline{-2,145.91}} \end{array}$$

$$\begin{array}{r} (8) \quad 3,784.02 \\ \quad \underline{\underline{-4,276.10}} \end{array}$$

$$\begin{array}{r} (9) \quad 545.25 \\ 545.25 \\ 545.25 \\ 15.30 \\ 15.30 \\ \hline \underline{\underline{15.30}} \end{array}$$

$$\begin{array}{r} (10) \quad 1,330.77 \\ 1,330.77 \\ 1,330.77 \\ 570.40 \\ 570.40 \\ \hline \underline{\underline{1,346.67}} \end{array}$$

(11) $591 \times 74 =$

(12) $47 \times 28 =$

(13) $13 \times 48 =$

(14) $721 \times 95 =$

(15) $65 \times 72 =$

(16) $15.6 \times 3.86 =$

(17) $52 \times 25.2 =$

(18) $5.27 \times 19.33 =$

(19) $3.87 \times 33.2 =$

(20) $19.45 \times 3.4 =$

(21) $30 \times 15 \times 22 \times 14 =$

(22) $122 \times 14 \times 45 =$

(23) $75 \times 31 \times 78 =$

(24) $30 \times 42 \times 25 \times 11 =$

(25) $64 \times 45 \times 71 =$

$$\begin{array}{r} (26) \quad 17 \times 92 \\ 37 \times 54 \\ \hline \underline{\underline{57 \times 49}} \end{array}$$

$$\begin{array}{r} (27) \quad 6.67 \times 4.9 \\ 89.42 \times .54 \\ \hline \underline{\underline{5.3 \times 6.9}} \end{array}$$

$$\begin{array}{r} (28) \quad 9.51 \times 47.5 \\ 5.71 \times 8.75 \\ \hline \underline{\underline{.54 \times 9.7}} \end{array}$$

(29) 136 lbs. at \$1.35 =

(31) 61 lbs. at \$1.35 =

(33) 58 lbs. at \$1.35 =

(35) 63 doz. at \$.95 =

(37) 433 doz. at \$.95 =

(39) $5,212 \div 57 =$

(41) $3,689 \div 24 =$

(43) $11,903 \div 437 =$

(45) $29.75 \div 3.4 =$

(47) $25 \div 595.25 =$

(30) 40 lbs. at \$1.35 =

(32) 87 lbs. at \$1.35 =

(34) 201 doz. at \$.95 =

(36) 16 doz. at \$.95 =

(38) 10 doz. at \$.95 =

(40) $687 \div 74 =$

(42) $9,864 \div 135 =$

(44) $107.542 \div 18 =$

(46) $13.15 \div 45 =$

(48) $13 \div 30.55 =$

SALES COMPARISON

MONTH	LAST YEAR	THIS YEAR	AMOUNT OF INCREASE OR DECREASE	% + OR -
January	\$ 13,600	\$ 16,495		
February	8,570	13,704		
March	14,547	22,322		
April	14,870	15,720		
May	21,740	18,239		
June	41,230	60,820		
July	16,932	18,509		
August	17,452	14,742		
September	21,704	19,207		
October	31,504	26,309		
November	25,801	35,620		
December	59,719	42,635		

154

205

(1)	7.84	(2)	.5267	(3)	4.875
	3.241		- 3.66		<u>.35</u>
	53.98		14.889		5.225 ST
	4.07		.525	(4)	7.645
	<u>4.321</u>		<u>-13.3</u>		<u>18.53</u>
	73.452		1.0193 Cr.		31.4 T

(5)	445.75	(6)	650.74	(7)	2,271.24
	<u>-205.98</u>		<u>-891.45</u>		<u>-2,145.91</u>
	239.77		240.71 Cr.		125.33

(8)	3,784.02	(9)	545.25	(10)	1,330.77
	<u>-4,276.10</u>		545.25		1,330.77
	492.08 Cr.		545.25		1,330.77
			15.30		570.40
			15.30		570.40
			<u>15.30</u>		<u>1,346.67</u>
			1,681.65		6,479.78

(11) $591 \times 74 = 43,734$

(12) $47 \times 28 = 1,316$

(13) $13 \times 48 = 624$

(14) $721 \times 95 = 68,495$

(15) $65 \times 72 = 4,680$

(16) $15.6 \times 3.86 = 60.216$

(17) $52 \times 25.2 = 1,310.4$

(18) $5.27 \times 19.33 = 101.8691$

(19) $3.87 \times 33.2 = 128.484$

(20) $19.45 \times 3.4 = 66.13$

(21) $30 \times 15 \times 22 \times 14 = 138,600$

(22) $122 \times 14 \times 45 = 76,860$

(23) $75 \times 31 \times 78 = 181,350$

(24) $30 \times 42 \times 25 \times 11 = 346,500$

(25) $64 \times 45 \times 71 = 204,480$

(26)	17 x 92
	37 x 54
	<u>57 x 49</u>
	6,355

(27)	6.67 x 4.9
	89.42 x .54
	<u>5.3 x 6.9</u>
	117.5398

(28)	9.51 x 47.5
	5.71 x 8.75
	<u>.54 x 9.7</u>
	506.9255

- (29) 136 lbs. at \$1.35 = \$183.60 (30) 40 lbs. at \$1.35 = \$54.00
 (31) 61 lbs. at \$1.35 = \$82.35 (32) 87 lbs. at \$1.35 = \$117.75
 (33) 58 lbs. at \$1.35 = \$78.30 (34) 201 doz. at \$.95 = \$190.95
 (35) 63 doz. at \$.95 = \$59.85 (36) 16 doz. at \$.95 = \$15.20
 (37) 433 doz. at \$.95 = \$411.35 (38) 10 doz. at \$.95 = \$ 9.50
 (39) $5,212 \div 57 = 91.43859$ (40) $687 \div 74 = 9.28378$
 (41) $3,689 \div 24 = 153.70833$ (42) $9,864 \div 135 = 73.06666$
 (43) $11,903 \div 437 = 27.23798$ (44) $107.542 \div 18 = 5.97455$
 (45) $29.75 \div 3.4 = 8.75$ (46) $13.15 \div 45 = .29222$
 (47) $25 \div 595.25 = .04199$ (48) $13 \div 30.55 = .42553$

SALES COMPARISON

MONTH	LAST YEAR	THIS YEAR	AMOUNT OF INCREASE OR DECREASE	% + OR -
January	\$ 13,600	\$ 16,495	\$ 2,895	+21.28%
February	8,570	13,704	5,134	+59.9%
March	14,547	22,322	7,775	+53.44%
April	14,870	15,720	850	+ 5.71%
May	21,740	18,239	\$ 3,501	-16.1%
June	41,230	60,820	19,590	+47.51%
July	16,932	18,509	1,577	+ 9.31%
August	17,452	14,742	2,710	-15.52%
September	21,704	19,207	2,497	-11.5%
October	31,504	26,309	5,195	-16.48%
November	25,801	35,620	9,819	+38.05%
December	59,719	42,635	17,084	-28.6%

156
 347

 194

DIRECTIONS

POST TEST FOR TEN-KEY ADDING-LISTING MACHINE

You will be allowed 15 minutes. Work quickly. Work each problem one time. If you finish in less than 15 minutes, use the remaining time to check your answers.

1. Round all reciprocals off to five decimal places.
2. Round all decimal equivalents off to five decimal places.
3. Round all products off to five decimal places.
4. Punctuate all answers with commas and decimal points.
5. Indicate special notations in answers, such as Cr., %, etc.
6. Number all the problems with the non-add key.
7. Turn in paper tape.
8. Complete evaluation sheet.
9. Turn in time sheet.

POST TEST

TEN-KEY ADDING-LISTING MACHINE

C-1

(1)	4.19	(2)	45.30	(3)	250.85
	7.42		78.62		405.30
	6.40		17.45		70.20
	4.25		47.32		336.98
	7.89		29.61		79.40
	9.33		69.45		205.19
	7.45		42.33		89.45
	<u>2.50</u>		<u>27.64</u>		<u>176.34</u>

(4)	2,435.62	(5)	19.65	(6)	45.90
	3,701.22		450.32		24.65
	6,324.19		795.20		100.54
	8,321.60		20.40		17.95
	741.97		304.17		4.50
	2.01		9,842.55		496.75
	75.40		421.95		4,201.13
	<u>1,204.25</u>		<u>25.00</u>		<u>1.19</u>

- | | | | |
|------|---|------|--|
| (7) | $502 \times 16 =$ | (8) | $516 \times 86 =$ |
| (9) | $4,019 \times 121 =$ | (10) | $3,216 \times 75 =$ |
| (11) | $2,703 \times 632 =$ | (12) | $6.39 \times 2.5 =$ |
| (13) | $12.64 \times 975 =$ | (14) | $66 \div 6 =$
(reciprocal of 6 is .16667) |
| (15) | $491 \div 40 =$
(reciprocal of 40 is .025) | (16) | $65.52 \div 33 =$
(reciprocal of 33 is .0303) |
| (17) | $4,316 \div 66 \frac{1}{2} =$
(reciprocal of 665 is .0015) | (18) | $42,793 \div 999 =$
(reciprocal of 999 is .001) |
| (19) | $874 \div \frac{1}{5} =$
(reciprocal of 20 is .05) | (20) | 104.02
<u>-17.66</u> |
| (21) | 419,959.40
<u>-37,201.89</u> | (22) | 16,321
<u>-18,000</u> |

$$\begin{array}{l} (23) \quad 23 \times 116 \\ \quad 99 \times 114 \\ \quad 94 \times 37 \\ \quad \underline{65 \times 11} \end{array}$$

$$(24) \quad (236 \times 22) - (37 \times 45) =$$

$$(25) \quad 75 \times 72 \times 21 =$$

160

370

~~370~~

POST TEST

KEY

TEN-KEY ADDING-LISTING MACHINE

C-1

- | | | | | | |
|------|---|------|---|-----|--|
| (1) | 4.19
7.42
6.40
4.25
7.89
9.33
7.45
<u>2.50</u>
49 43 | (2) | 45.30
78.62
17.45
47.32
29.61
69.45
42.33
<u>27.64</u>
357.72 | (3) | 250.85
405.30
70 20
336.98
79.40
205.19
89.45
<u>176.34</u>
1,613.71 |
| (4) | 2,435.62
3,701.22
6,324.19
8,321.60
741.97
2.01
75.40
<u>1,204.25</u>
22,806.26 | (5) | 19.65
450.32
795.20
20.40
304.17
9,842.55
421.95
<u>25.00</u>
11,879.24 | (6) | 45.90
24.65
100.54
17.95
4.50
496.75
4,201.13
<u>1.19</u>
4,892.61 |
| (7) | 502 x 16 = 8,032 | (8) | 516 x 86 = 44,376 | | |
| (9) | 4,019 x 121 = 486,299 | (10) | 3,216 x 75 = 241,200 | | |
| (11) | 2,703 x 632 = 1,708,296 | (12) | 6.39 x 2.5 = 15 975 | | |
| (13) | 12.64 x 975 = 12,324 | (14) | 66 ÷ 6 = 11 00022
(reciprocal of 6 is .16667) | | |
| (15) | 491 ÷ 40 = 12.275
(reciprocal of 40 is .025) | (16) | 65.52 ÷ 33 = 1.98526
(reciprocal of 33 is .0303) | | |
| (17) | 4,316 ÷ 66 1/2 = 64.74
(reciprocal of 665 is .0015) | (18) | 42,793 ÷ 999 = 42.793
(reciprocal of 999 is .001) | | |
| (19) | 874 ÷ 1/5 = 4,370
(reciprocal of 20 is .05) | (20) | 104.02
<u>-17.66</u>
86.36 | | |
| (21) | 419,959.40
<u>-37,201.89</u>
382,757 51 | (22) | 16,321
<u>-18,000</u>
1,679 Cr. | | |

161
371

$$\begin{array}{r} (23) \quad 23 \times 116 \\ \quad 99 \times 114 \\ \quad 94 \times 37 \\ \quad \underline{65 \times 11} \end{array}$$

18,147

$$(24) \quad (236 \times 22) - (37 \times 45) = 3,527$$

$$(25) \quad 75 \times 72 \times 21 = 113,400$$

162
373

POST TEST

TEN-KEY ADDING-LISTING MACHINE

C-2

(1)	4.19	(2)	45.30	(3)	250.85
	7.42		78.62		504.20
	5.80		19.95		70.20
	4.25		47.32		336.98
	7.89		17.52		68.30
	9.33		69.45		205.19
	6.34		42.33		89.45
	<u>2.50</u>		<u>27.64</u>		<u>176.34</u>

(4)	2,435.62	(5)	19.65	(6)	45.90
	3,701.22		340.32		42.75
	6,324.19		20.40		100.54
	9,421.50		795.20		17.95
	831.96		321.16		3.20
	2.01		9,842.55		496.75
	75.40		421.95		4,201.13
	<u>1,204.25</u>		<u>25.00</u>		<u>1.19</u>

- | | | | |
|------|--|------|---|
| (7) | 106 x 16 = | (8) | 324 x 86 = |
| (9) | 3,018 x 211 = | (10) | 3,452 x 75 = |
| (11) | 1,902 x 632 = | (12) | 2.28 x 2.5 = |
| (13) | 12.74 x 975 = | (14) | 96 ÷ 6 =
(reciprocal of 6 is .16667) |
| (15) | 416 ÷ 40 =
(reciprocal of 40 is .025) | (16) | 73.15 ÷ 33 =
(reciprocal of 33 is .0303) |
| (17) | 4,316 ÷ 66 1/2 =
(reciprocal of 665 is .0015) | (18) | 14,286 ÷ 999 =
(reciprocal of 999 is .001) |
| (19) | 367 ÷ 1/5 =
(reciprocal of 20 is .05) | (20) | 104.02
<u>-17.66</u> |
| (21) | 419,959.40
<u>-37,207.89</u> | (22) | 16,321
<u>-18,000</u> |

(23) 23×136
 99×113
 83×37
 75×11

(24) $(236 \times 21) - (37 \times 57) =$

(25) $95 \times 63 \times 21 =$

164

374

POST TEST

KEY

TEN-KEY ADDING-LISTING MACHINE

C-2

(1)	4.19	(2)	45.30	(3)	250.85
	7.42		78.62		504.20
	5.80		19.95		70.20
	4.25		47.32		336.98
	7.89		17.52		68.30
	9.33		69.45		205.19
	6.34		42.33		89.45
	<u>2.50</u>		<u>27.64</u>		<u>176.34</u>
	47.72		348.13		1,701.51

(4)	2,435.62	(5)	19.65	(6)	45.90
	3,701.22		340.32		42.75
	6,324.19		20.40		100.54
	9,421.50		795.20		17.95
	831.96		321.16		3.20
	2.01		9,842.55		496.75
	75.40		421.95		4,201.13
	<u>1,204.25</u>		<u>25.00</u>		<u>1.19</u>
	13,996.15		11,786.23		4,909.41

(7)	$106 \times 16 = 1,696$	(8)	$324 \times 86 = 27,864$
(9)	$3,018 \times 211 = 636,798$	(10)	$3,452 \times 75 = 258,900$
(11)	$1,902 \times 632 = 1,202,064$	(12)	$2.28 \times 2.5 = 5.7$
(13)	$12.74 \times 975 = 12,421.5$	(14)	$96 \div 6 = 16.0002$ (reciprocal of 6 is .16667)
(15)	$416 \div 40 = 10.4$ (reciprocal of 40 is .025)	(16)	$73.15 \div 33 = 2.21645$ (reciprocal of 33 is .0303)
(17)	$4,316 \div 66 \frac{1}{2} = 64.74$ (reciprocal of 665 is .0015)	(18)	$14,286 \div 999 = 14.286$ (reciprocal of 999 is .001)
(19)	$367 \div \frac{1}{5} = 1,835$ (reciprocal of 20 is .05)	(20)	104.02 <u>-17.66</u> 86.36
(21)	419,959.40 <u>-37,207.89</u> 382,751.51	(22)	16,321 <u>-18,000</u> 1,679 Cr.

075

$$\begin{array}{r} (23) \quad 23 \times 136 \\ \quad 99 \times 113 \\ \quad 83 \times 37 \\ \quad \underline{75 \times 11} \end{array}$$

18,211

$$(24) \quad (236 \times 21) - (37 \times 57) = 2,847$$

$$(25) \quad 95 \times 63 \times 21 = 125,685$$

POST TEST

TEN-KEY ADDING-LISTING MACHINE

C-3

(1)	4.19	(2)	45.30	(3)	250.85
	7.42		78.62		503.10
	4.70		19.95		70.20
	4.25		36.23		336.98
	7.89		29.61		79.40
	9.33		69.45		205.19
	7.45		42.33		89.45
	<u>2.50</u>		<u>27.64</u>		<u>176.34</u>

(4)	2,435.62	(5)	19.65	(6)	45.90
	3,701.22		540.23		24.65
	6,324.19		795.20		100.54
	9,301.40		20.40		17.95
	741.97		321.16		4.50
	2.01		9,842.55		496.75
	75.40		421.95		4,201.13
	<u>1,204.25</u>		<u>25.00</u>		<u>1.19</u>

- | | |
|---|--|
| (7) 205 x 14 = | (8) 421 x 76 = |
| (9) 4,019 x 112 = | (10) 4,325 x 57 = |
| (11) 2,902 x 523 = | (12) 4.36 x 2.5 = |
| (13) 13.86 x 975 = | (14) 99 ÷ 6 =
(reciprocal of 6 is .16667) |
| (15) 324 ÷ 40 =
(reciprocal of 40 is .025) | (16) 27.42 ÷ 33 =
(reciprocal of 33 is .0303) |
| (17) 4,362 ÷ 66 1/2 =
(reciprocal of 665 is .0015) | (18) 42,937 ÷ 999 =
(reciprocal of 999 is .001) |
| (19) 87 ⁴ ÷ 1/5 =
(reciprocal of 20 is .05) | (20) 104.02
<u>-16.74</u> |
| (21) 419,959.40
<u>-37,102.76</u> | (22) 16,321
<u>-18,000</u> |

$$\begin{array}{l} (23) \quad 13 \times 136 \\ \quad \quad 99 \times 114 \\ \quad \quad 94 \times 37 \\ \quad \quad \underline{75 \times 21} \end{array}$$

$$(24) \quad (320 \times 11) - (24 \times 75) =$$

$$(25) \quad 89 \times 72 \times 21 =$$

168
373

POST TEST

KEY

TEN-KEY ADDING-LISTING MACHINE

C-3

- | | | | | | |
|------|---|------|---|-----|---------------|
| (1) | 4.19 | (2) | 45.30 | (3) | 250.85 |
| | 7.42 | | 78.62 | | 503.10 |
| | 4.70 | | 19.95 | | 70.20 |
| | 4.25 | | 36.23 | | 336.98 |
| | 7.89 | | 29.61 | | 79.40 |
| | 9.33 | | 69.45 | | 205.19 |
| | 7.45 | | 42.33 | | 89.45 |
| | <u>2.50</u> | | <u>27.64</u> | | <u>175.34</u> |
| | 47 73 | | 349.13 | | 1,711.51 |
| (4) | 2,435.62 | (5) | 19.65 | (6) | 45.90 |
| | 3,701.22 | | 540.23 | | 24.65 |
| | 6,324.19 | | 795.20 | | 100.54 |
| | 9,301.40 | | 20.40 | | 17.95 |
| | 741.97 | | 321.16 | | 4.50 |
| | 2.01 | | 9,842.55 | | 496.75 |
| | 75.40 | | 421.95 | | 4,201.13 |
| | <u>1,204.25</u> | | <u>25.00</u> | | <u>1.19</u> |
| | 23,786.06 | | 11,986.14 | | 4,892.61 |
| (7) | $205 \times 14 = 2,870$ | (8) | $421 \times 76 = 31,996$ | | |
| (9) | $4,019 \times 112 = 450,128$ | (10) | $4,325 \times 57 = 246,525$ | | |
| (11) | $2,902 \times 523 = 1,517,746$ | (12) | $4.36 \times 2.5 = 10.9$ | | |
| (13) | $13.86 \times 975 = 13,513.5$ | (14) | $99 \div 6 = 16.50033$
(reciprocal of 6 is .16667) | | |
| (15) | $324 \div 40 = 8.1$
(reciprocal of 40 is .025) | (16) | $27.42 \div 33 = .8308$
(reciprocal of 33 is .0303) | | |
| (17) | $4,362 \div 66 \frac{1}{2} = 65.43$
(reciprocal of 665 is .0015) | (18) | $42,937 \div 999 = 42.937$
(reciprocal of 999 is .001) | | |
| (19) | $874 \div \frac{1}{5} = 4,370$
(reciprocal of 20 is .05) | (20) | 104.02
<u>-16.74</u>
87.28 | | |
| (21) | 419,959.40
<u>-37,102.76</u>
382,856.64 | (22) | 16,321
<u>-18,000</u>
1,679 Cr. | | |

$$\begin{array}{r} (23) \quad 13 \times 136 \\ \quad 99 \times 114 \\ \quad 94 \times 57 \\ \quad \underline{75 \times 21} \end{array}$$

18,107

$$(24) \quad (320 \times 11) - (24 \times 75) = 1,720$$

$$(25) \quad 89 \times 72 \times 21 = 134,568$$

180

170

DIRECTIONS

POST TEST FOR FULL KEYBOARD ADDING-LISTING MACHINE

You will be allowed 20 minutes. Work quickly. Work each problem one time. If you finish in less than 20 minutes, use the remaining time to check your answers.

1. Round all reciprocals off to five decimal places.
2. Round all decimal equivalents off to five decimal places.
3. Round all products off to five decimal places.
4. Punctuate all answers with commas and decimal points.
5. Indicate special notations in answers, such as Cr., %, etc.
6. Number each problem with the non-add key.
7. Turn in paper tape.
8. Complete evaluation sheet.
9. Turn in time sheet.

POST TEST

FULL KEYBOARD ADDING-LISTING MACHINE

D-1

(1)	1.25	(2)	488	(3)	42.25
	6.22		626		17.21
	9.17		324		102.77
	7.21		800		88.99
	4.07		727		17.24
	1.88		325		326.19
	7.04		815		1,421.00
	<u>7.19</u>		<u>704</u>		<u>4.97</u>

(4)	4,761.44	(5)	95.32	(6)	7.27
	8,418.16		17.88		8.19
	121.30		4.21		40.22
	190.16		302.16		4.26
	17.23		4,317.82		317.19
	476.20		19.21		8.94
	24.70		418.19		1,602.21
	<u>9.64</u>		<u>2.21</u>		<u>24.70</u>

- | | | | |
|------|---|------|--|
| (7) | $306 \times 15 =$ | (8) | $195 \times 83 =$ |
| (9) | $3,028 \times 22 =$ | (10) | $5,126 \times 64 =$ |
| (11) | $1,803 \times 512 =$ | (12) | $4.16 \times 1.9 =$ |
| (13) | $16.21 \times 754 =$ | (14) | $64 \div 4 =$
(reciprocal of 4 is .25) |
| (15) | $421 \div 40 =$
(reciprocal of 40 is .025) | (16) | $33.27 \div 33 =$
(reciprocal of 33 is .0303) |
| (17) | $3,214 \div 66 \frac{1}{2} =$
(reciprocal of 665 is .0015) | (18) | $32,364 \div 999 =$
(reciprocal of 999 is .001) |
| (19) | $357 \div \frac{1}{5} =$
(reciprocal of 20 is .05) | (20) | 316.42
<u>-87.76</u> |
| (21) | 819.80
<u>-519.89</u> | (22) | 704.32
<u>-800.00</u> |

(23) 4,146.80
-2,997.67

(24) 15.95
-12.76

(25) 14,624
-17,000

174
383

DIRECTIONS FOR POST TEST

ELECTRONIC CALCULATOR

You will be given 40 minutes. Work quickly. If you finish in less than 40 minutes, use the remaining time to check your work.

1. Round cents off to two decimal places.
2. Round percentages off to two decimal places.
3. Round all products off to five decimal places.
4. Round all quotients off or up to five decimal places.
5. Punctuate all answers with commas and decimal points.
6. Indicate special notations in answers; for example - Cr., %.

384

ch-7/6-A

ELECTRONIC CALCULATOR

(1)	70	(2)	.4168	(3)	57,920	(4)	18,920
	69		2.21		<u>-48,621</u>		<u>-21,400</u>
	31		.103				
	16		33.1096				
	<u>22</u>		<u>34.60</u>				

(5)	18.42	(6)	18 x 45 =
	- 1.065	(7)	7.24 x 18.9 =
	2.2107	(8)	17 x 15 x 3 x 8 =
	-14.18	(9)	16.4 x 45.3 x 19.2 =
	<u>3.2</u>	(10)	48.7 x 6.19 x 14.3 =

(11) $(92 \times 17) - (14 \times 22) =$

(12) $(24 \times 32) - (17 \times 102) =$

(13) $(49 \times 15) - (44 \times 29) =$

(14) 200 doz. at \$1.19 =

(15) 48 doz. at \$1.19 =

(16) 18 doz. at \$1.19 =

(17) 43 doz. at \$1.19 =

(18) 434 doz. at \$1.19 =

(19) 135 doz. at \$1.19 =

(20) 57 doz. at \$1.19 =

185
174-B

$$(21) \quad 16 \div 4 =$$

$$(22) \quad 97.6 \div 14 =$$

$$(23) \quad 401 \div 1.02 =$$

$$(24) \quad 13,709 \div 43 =$$

$$(25) \quad 749 \div 19 =$$

$$(26) \quad 196 \div 413 =$$

$$(27) \quad 409 \div 2.36 =$$

$$(28) \quad 1,057 \div 2.725 =$$

$$(29) \quad 14,701 \div 18.25 =$$

$$(30) \quad 73,201 \div 65 =$$

INTEREST CALCULATION

	<u>Amount of Principle</u>	<u>Interest Rate</u>	<u>Period of Time</u>	<u>Amount to be Repaid</u>
31.	\$572	3 1/2%	52 days	
32.	\$402	6%	60 days	
33.	\$2,000	6 1/2%	66 days	
34.	\$4,715	6%	90 days	
35.	\$15,000	4%	75 days	
36.	\$8,975	5 1/2%	20 days	
37.	\$3,000	5%	190 days	
38.	\$8,000	4 3/4%	60 days	
39.	\$10,624	7%	50 days	
40.	\$13,905	8%	100 days	

	QUANTITY	UNIT PRICE	EXTENSION
41.	16	\$4.18	
42.	75	3.23	
43.	14	1.90	
44.	45	3.22	
45.	17	3.09	
46.	29	4.07	
47.	4	.18	
48.	18	7.06	
49.	12	4.66	
50.	31	.70	
51.		TOTAL	
52.		3% Sales Tax	_____
53.		Amount Due	_____

267



DISCOUNTS AND NET AMOUNTS

	<u>Amount</u>	<u>Discount Rate</u>	<u>Amount of Discount</u>	<u>Net Amount</u>
54/55	\$295.00	4 1/2%		
56/57	320.00	5%		
58/59	425.00	9%		
60/61	1460.00	5 1/2%		
62/63	95.00	6 3/4%		
64/65	198.50	6%		
66/67	619.22	11%		
68/69	79.55	3%		
70/71	245.29	4 3/4%		
72/73	550.00	13%		

CALCULATING THE PER CENT OF MARKUP BASED ON COST

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>
74.	\$15.00	\$21.00	
75.	4.95	5.30	
76.	165.19	200.00	
77.	196.20	220.00	
78.	210.00	250.00	

388

CALCULATING THE PER CENT OF MARKUP BASED ON SELLING PRICE

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>
79.	\$29.00	\$36.00	
80.	46.00	49.95	
81.	122.00	128.95	
82.	176.50	200.00	
83.	217.32	315.05	

CALCULATING THE SELLING PRICE WITH MARKUP BASED ON COST

	<u>Cost</u>	<u>Markup</u>	<u>Selling Price</u>
84.	\$25.00	30%	
85.	17.95	19%	
86.	232.75	24%	
87.	227.82	35%	
88.	39.95	15%	

	<u>CASH PRICE</u>	<u>INSTALLMENT PRICE</u>	<u>CARRYING CHARGE</u>	<u>DOWN PAYMENT</u>	<u>MONTHS</u>	<u>MONTHLY PAYMENT</u>
89/90	\$500.00	\$560.00	\$	\$50.00	10	\$
91/92	990.00	1200.00		20.00	9	
93/94	1200.00	1430.00		150.00	8	
95/96	790.00	900.00		75.00	10	
97/98	500.00	700.00		200.00	6	
99/100	1000.00	1510.00		350.00	12	

389

POST TEST

KEY

FULL KEYBOARD ADDING-LISTING MACHINE

D-1

(1)	1.25	(2)	488	(3)	42.25
	6.22		626		17.21
	9.17		324		102.77
	7.21		800		88.99
	4.07		727		17.24
	1.88		325		326.19
	7.04		815		1,421.00
	<u>7.19</u>		<u>704</u>		<u>4.97</u>
	44 03		4,809		2,020.62

(4)	4,761.44	(5)	95.32	(6)	7.27
	8,418.16		17.88		8.19
	121.30		4.21		40.22
	190.16		302.16		4.26
	17.23		4,317.82		317.19
	476.20		19.21		8.94
	24.70		418.19		1,602.21
	<u>9.64</u>		<u>2.21</u>		<u>24.70</u>
	14,018.83		5,177.00		2,012.98

(7) $306 \times 15 = 4,590$

(8) $195 \times 83 = 16,185$

(9) $3,028 \times 223 = 675,244$

(10) $5,126 \times 64 = 328,064$

(11) $1,803 \times 512 = 923,136$

(12) $4.16 \times 1.9 = 7.904$

(13) $16.21 \times 754 = 12,222.34$

(14) $64 \div 4 = 16$
(reciprocal of 4 is .25)

(15) $421 \div 40 = 10.525$
(reciprocal of 40 is .025)

(16) $33.27 \div 33 = 1.00808$
(reciprocal of 33 is .0303)

(17) $3,214 \div 66 \frac{1}{2} = 48.21$
(reciprocal of 665 is .0015)

(18) $32,364 \div 999 = 32.364$
(reciprocal of 999 is .001)

(19) $357 \div \frac{1}{5} = 1,785$
(reciprocal of 20 is .05)

(20) 316.42
-87.76
228.66

(21) 819.80
-519.89
299.91

(22) 704.32
-800.00
95.68 Cr.

(23) 4,146.80
-2,997.67

1,149.13

(25) 14,624
-17,000

2,376 Cr.

(24) 15.95
-12.76

3.19

391

176

POST TEST

FULL KEYBOARD ADDING-LISTING MACHINES

D-2

(1) 1.25
6.22
9.18
6.42
4.07
2.88
7.04
7.19

(2) 477
626
324
600
727
325
819
704

(3) 42.25
17.21
102.77
88.99
17.24
326.19
1,421.00
4.97

(4) 4,761.44
8,418.16
112.40
170.15
17.23
476.20
24.70
9.64

(5) 95.32
16.77
4.21
302.16
4,317.82
19.21
418.19
1.12

(6) 6.26
8.19
40.22
4.26
317.19
4.98
1,602.21
24.70

(7) $405 \times 14 =$

(8) $186 \times 74 =$

(9) $2,037 \times 322 =$

(10) $4,315 \times 64 =$

(11) $1,902 \times 513 =$

(12) $3.27 \times 1.6 =$

(13) $15.32 \times 742 =$

(14) $53 \div 4 =$
(reciprocal of 4 is .25)

(15) $342 \div 40 =$
(reciprocal of 40 is .025)

(16) $27.95 \div 33 =$
(reciprocal of 33 is .0303)

(17) $3,215 \div 66 \frac{1}{2} =$
(reciprocal of 665 is .0015)

(18) $23,634 \div 999 =$
(reciprocal of 999 is .001)

(19) $623 \div \frac{1}{5} =$
(reciprocal of 20 is .05)

(20) 316.42
 $- 79.76$

(21) 819.80
-529.88

(22) 704.32
-800.00

(23) 4,146.80
-2,899.67

(24) 15.95
- 9.63

(25) 14,624
-17,000



POST TEST

KEY

FULL KEYBOARD ADDING-LISTING MACHINES

D-2

(1)	1.25	(2)	477	(3)	42.25
	6.22		626		17.21
	9.18		324		102.77
	6.42		600		88.99
	4.07		727		17.24
	2.88		325		326.19
	7.04		819		1,421.00
	<u>7.19</u>		<u>704</u>		<u>4.97</u>
	44.25		4,602		2,020.62
(4)	4,761.44	(5)	95.32	(6)	6.26
	8,418.16		16.77		8.19
	112.40		4.21		40.22
	170.15		302.16		4.26
	17.23		4,317.82		317.19
	476.20		19.21		4.98
	24.70		418.19		1,602.21
	<u>9.64</u>		<u>1.12</u>		<u>24.70</u>
	13,989.92		5,174.80		2,008.01
(7)	405 x 14 = 5,670	(8)	186 x 74 = 13,764		
(9)	2,037 x 322 = 655,914	(10)	4,315 x 64 = 276,160		
(11)	1,902 x 513 = 975,726	(12)	3.27 x 1.6 = 5.232		
(13)	15.32 x 742 = 11,367.44	(14)	53 ÷ 4 = 13.25 (reciprocal of 4 is .25)		
(15)	342 ÷ 40 = 8.55 (reciprocal of 40 is .025)	(16)	27.95 ÷ 33 = .8468 (reciprocal of 33 is .0303)		
(17)	3,215 ÷ 66 1/2 = 48.225 (reciprocal of 665 is .0015)	(18)	23,634 ÷ 999 = 23.634 (reciprocal of 999 is .001)		
(19)	623 ÷ 1/5 = 3,115 (reciprocal of 20 is .05)	(20)	316.42 - 79.76 <u>236.66</u>		

(21) 819.80
-529.88
289.92

(22) 704.32
-800.00
95.68 Cr.

(23) 4,146.80
-2,899.67
1,247.13

(24) 15.95
- 9.63
6.32

(25) 14,624
-17,000
2,376 Cr.

180
255



POST TEST

FULL KEYBOARD ADDING-LISTING MACHINE

D-3

(1)	1.25	(2)	477	(3)	42.25
	5.33		626		15.31
	9.18		324		102.77
	7.21		800		6.28
	4.07		727		1.4
	2.88		325		326.19
	7.04		918		1,421.00
	<u>7.19</u>		<u>704</u>		<u>4.97</u>

(4)	4,761.44	(5)	95.32	(6)	7.27
	8,418.16		18.77		8.19
	112.40		4.21		50.33
	190.16		302.16		4.26
	17.23		4,317.82		317.19
	567.10		19.21		4.98
	24.70		418.19		1,602.21
	<u>9.64</u>		<u>1.12</u>		<u>24.70</u>

- | | |
|--|---|
| (7) 207 x 14 = | (8) 264 x 74 = |
| (9) 3,028 x 322 = | (10) 4,315 x 64 = |
| (11) 1,705 x 513 = | (12) 5.15 x 1.6 = |
| (13) 15.12 x 742 = | (14) $37 \div 4 =$
(reciprocal of 4 is .25) |
| (15) $386 \div 40 =$
(reciprocal of 40 is .025) | (16) $27.95 \div 33 =$
(reciprocal of 33 is .0303) |
| (17) $3,281 \div 66 \frac{1}{2} =$
(reciprocal of 665 is .0015) | (18) $14,901 \div 999 =$
(reciprocal of 999 is .001) |
| (19) $623 \div \frac{1}{5} =$
(reciprocal of 20 is .05) | (20) <u>461.24</u>
<u>89.67</u> |

(21) 729.60
-629.99

(22) 704.32
-800.00

(23) 4,146.80
-2,779.67

(24) 15.95
-10.27

(25) 14,624
-19,000

182

187

POST TEST

KEY

FULL KEYBOARD ADDING-LISTING MACHINE

D-3

- | | | | | | |
|------|---|------|--|-----|--------------|
| (1) | 1.25 | (2) | 477 | (3) | 42.25 |
| | 5.33 | | 626 | | 15.31 |
| | 9.18 | | 324 | | 102.77 |
| | 7.21 | | 800 | | 99.88 |
| | 4.07 | | 727 | | 17.24 |
| | 2.88 | | 325 | | 326.19 |
| | 7.04 | | 918 | | 1,421.00 |
| | <u>7.19</u> | | <u>704</u> | | <u>4.97</u> |
| | 44 15 | | 4,901 | | 2,029.61 |
| (4) | 4,761.44 | (5) | 95.32 | (6) | 7.27 |
| | 8,418.16 | | 18.77 | | 8.19 |
| | 112.40 | | 4.21 | | 50.33 |
| | 190.16 | | 302.16 | | 4.26 |
| | 17.23 | | 4,317.82 | | 317.19 |
| | 567.10 | | 19.21 | | 4.98 |
| | 24.70 | | 418.19 | | 1,602.21 |
| | <u>9.64</u> | | <u>1.12</u> | | <u>24.70</u> |
| | 4,100.83 | | 5,176.80 | | 2,019.13 |
| (7) | 207 x 14 = 2,898 | (8) | 264 x 74 = 19,536 | | |
| (9) | 3,028 x 322 = 975,016 | (10) | 4,315 x 64 = 276,160 | | |
| (11) | 1,705 x 513 = 874,665 | (12) | 5.15 x 1.6 = 8.24 | | |
| (13) | 15.12 x 742 = 11,219.04 | (14) | 37 ÷ 4 = 9.25
(reciprocal of 4 is .25) | | |
| (15) | 386 ÷ 40 = 9.65
(reciprocal of 40 is .025) | (16) | 27.95 ÷ 33 = .8468
(reciprocal of 33 is .0303) | | |
| (17) | 3,281 ÷ 66 1/2 = 49.215
(reciprocal of 66.5 is .015) | (18) | 14,901 ÷ 999 = 14.901
(reciprocal of 999 is .001) | | |
| (19) | 623 ÷ 1/5 = 3,115
(reciprocal of 20 is .05) | (20) | 461.24
<u>- 89.67</u>
371.57 | | |

(21) 729.60
-629.99
99.61

(22) 704.32
-800.00
95.68 Cr.

(23) 4,146.80
-2,779.67
1,367.13

(24) 15.95
-10.27
5.68

(25) 14,624
-19,000
4,376 Cr.



ELECTRONIC CALCULATOR

- | | | | | | | | |
|-----|-----------|-----|--------------|-----|----------------|-----|----------------|
| (1) | 70 | (2) | .4168 | (3) | 57,920 | (4) | 18,920 |
| | 69 | | 2.21 | | <u>-48,621</u> | | <u>-21,400</u> |
| | 31 | | .103 | | 9,299 | | 2,480 Cr. |
| | 16 | | 33.1096 | | | | |
| | <u>22</u> | | <u>34.60</u> | | | | |
| | 208 | | 70.4394 | | | | |
- (5) 18.42
- 1.065
2.2107
-14.18
3.2
8.5857
- (6) 18 x 45 = 810
- (7) 7.24 x 18.9 = 136.836
- (8) 17 x 15 x 3 x 8 = 6,120
- (9) 16.4 x 45.3 x 19.2 = 14,264.064
- (10) 48.7 x 6.19 x 14.3 = 4,310.7779
- (11) (92 x 17) - (14 x 22) = 1,256
- (12) (24 x 32) - (17 x 102) = -966
- (13) (49 x 15) - (44 x 29) = -541
- (14) 200 doz. at \$1.19 = \$238
- (15) 48 doz. at \$1.19 = \$57.12
- (16) 18 doz. at \$1.19 = \$21.42
- (17) 43 doz. at \$1.19 = \$51.17
- (18) 434 doz. at \$1.19 = \$516.46
- (19) 135 doz. at \$1.19 = \$160.65
- (20) 57 doz. at \$1.19 = \$67.83

$$(21) 16 \div 4 = 4$$

$$(22) 97.6 \div 14 = 6.97143$$

$$(23) 401 \div 1.02 = 393.13725$$

$$(24) 13,709 \div 43 = 318.81395$$

$$(25) 749 \div 19 = 39.42105$$

$$(26) 196 \div 413 = .47458$$

$$(27) 409 \div 2.36 = 173.30508$$

$$(28) 1,057 \div 2.725 = 387.88991$$

$$(29) 14,701 \div 18.25 = 805.53425$$

$$(30) 73,201 \div 65 = 1,126.16923$$

INTEREST CALCULATION

<u>Amount of Principle</u>	<u>Interest Rate</u>	<u>Period of Time</u>	<u>Amount to be Repaid</u>
\$572	3 1/2%	52 days	\$ 574.85
\$402	6%	60 days	405.96
\$2,000	6 1/2%	66 days	2,023.51
\$4,715	6%	90 days	4,784.76
\$15,000	4%	75 days	15,123.29
\$8,975	5 1/2%	20 days	9,002.05
\$3,000	5%	190 days	3,078.08
\$8,000	4 3/4%	60 days	8,062.47
\$10,624	7%	50 days	10,725.87
\$13,905	8%	100 days	14,209.77

402

	QUANTITY	UNIT PRICE	EXTENSION
41.	16	\$4.18	66.88
42.	75	3.23	242.25
43.	14	1.90	26.60
44.	45	3.22	144.90
45.	17	3.09	52.53
46.	29	4.07	118.03
47.	4	.18	.72
48.	18	7.06	127.08
49.	12	4.66	55.92
50.	31	.70	21.70
51.		TOTAL	<u>856.61</u>
52.		3% Sales Tax	<u>.25.70</u>
53.		Amount Due	<u>882.31</u>

403

DISCOUNTS AND NET AMOUNTS

	<u>Amount</u>	<u>Discount Rate</u>	<u>Amount of Discount</u>	<u>Net Amount</u>
54/55	\$295.00	4 1/2%	\$ 13.28	\$281.72
56/57	320.00	5%	16.00	304.00
58/59	425.00	9%	38.25	386.75
60/61	1,460.00	5 1/2%	80.30	1,379.70
62/63	95.00	6 3/4%	6.41	88.59
64/65	198.50	6%	11.91	186.59
66/67	619.22	11%	68.11	551.11
68/69	79.55	3%	2.39	77.16
70/71	245.29	4 3/4%	11.65	233.64
72/73	550.00	13%	71.50	478.50

CALCULATING THE PER CENT OF MARKUP BASED ON COST

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>
74.	15.00	21.00	40%
75.	4.95	5.30	7.07%
76.	165.19	200.00	21.07%
77.	196.20	220.00	12.13%
78.	210.00	250.00	19.05%

403

CALCULATING THE PER CENT OF MARKUP BASED ON SELLING PRICE

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>
79.	\$29.00	\$36.00	19.44%
80.	46.00	49.95	7.91%
81.	122.00	128.95	5.39%
82.	176.50	200.00	11.75%
83.	217.32	315.05	31.02%

CALCULATING THE SELLING PRICE WITH MARKUP BASED ON COST

	<u>Cost</u>	<u>Markup</u>	<u>Selling Price</u>
84.	\$25.00	30%	\$32.50
85.	17.95	19%	21.36
86.	232.75	24%	288.61
87.	227.82	35%	307.56
88.	39.95	15%	45.94

	<u>CASH PRICE</u>	<u>INSTALLMENT PRICE</u>	<u>CARRYING CHARGE</u>	<u>DOWN PAYMENT</u>	<u>MONTHS</u>	<u>MONTHLY PAYMENT</u>
89/90	\$500.00	\$560.00	\$ 60.00	\$ 50.00	10	\$51.00
91/92	990.00	1,200.00	210.00	20.00	9	131.11
93/94	1,200.00	1,430.00	230.00	150.00	8	160.00
95/96	790.00	900.00	110.00	75.00	10	82.50
97/98	500.00	700.00	200.00	200.00	6	83.33
99/100	1,000.00	1,510.00	510.00	350.00	12	96.67

401



POST TEST

E-2

ELECTRONIC CALCULATOR

(1)	70	(2)	.4168	(3)	57,926	(4)	18,830
	69		2.27		<u>-48,621</u>		<u>-21,400</u>
	31		.103				
	16		33.1096				
	<u>24</u>		<u>34.60</u>				

(5) 18.43
 - 1.065
 2.2107
 -14.18
3.2

(6) 19 x 45 =

(7) 7.22 x 18.9 =

(8) 16 x 15 x 3 x 8 =

(9) 16.5 x 45.3 x 19.2 =

(10) 48.5 x 6.19 x 14.3 =

(11) (92 x 15) - (14 x 22) =

(12) (20 x 32) - (17 x 102) =

(13) (49 x 12) - (44 x 29) =

(14) 200 doz. at \$1.45 =

(15) 48 doz. at \$1.45 =

(16) 18 doz. at \$1.45 =

(17) 43 doz. at \$1.45 =

(18) 434 doz. at \$1.45 =

(19) 135 doz. at \$1.45 =

(20) 57 doz. at \$1.45 =

$$(21) \quad 18 \div 4 =$$

$$(22) \quad 97.6 \div 12 =$$

$$(23) \quad 402 \div 1.02 =$$

$$(24) \quad 13,709 \div 41 =$$

$$(25) \quad 749 \div 16 =$$

$$(26) \quad 195 \div 413 =$$

$$(27) \quad 405 \div 2.36 =$$

$$(28) \quad 1,047 \div 2.725 =$$

$$(29) \quad 14,501 \div 18.25 =$$

$$(30) \quad 70,201 \div 65 =$$

INTEREST CALCULATION

	<u>Amount of Principle</u>	<u>Interest Rate</u>	<u>Period of Time</u>	<u>Amount to be Repaid</u>
31.	\$580.00	3 1/2%	52 days	
32.	400.00	6%	60 days	
33.	1,500.00	6 1/2%	66 days	
34.	4,500.00	6%	90 days	
35.	16,000.00	4%	75 days	
36.	7,995.00	5 1/2%	20 days	
37.	3,500.00	5%	190 days	
38.	7,800.00	4 3/4%	60 days	
39.	10,500.00	7%	50 days	
40.	12,775.00	8%	100 days	

408

	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>EXTENSION</u>
41.	18	\$4.18	
42.	70	3.23	
43.	12	1.90	
44.	40	3.22	
45.	15	3.09	
46.	25	4.07	
47.	5	.18	
48.	15	7.06	
49.	10	4.66	
50.	30	.70	
51.		TOTAL	_____
52.		3% Sales Tax	_____
53.		Amount Due	_____

407

DISCOUNTS AND NET AMOUNTS

	<u>Amount</u>	<u>Discount Rate</u>	<u>Amount of Discount</u>	<u>Net Amount</u>
54/55	\$300.00	4 1/2%		
56/57	300.00	5%		
58/59	400.00	9%		
60/61	1,450.00	5 1/2%		
62/63	93.00	6 3/4%		
64/65	195.50	6%		
66/67	620.00	11%		
68/69	89.65	3%		
70/71	240.29	4 3/4%		
72/73	540.00	13%		

CALCULATING THE PER CENT OF MARKUP BASED ON COST

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>
74.	\$13.00	\$21.00	
75.	3.95	5.30	
76.	160.19	200.00	
77.	195.10	220.00	
78.	280.00	310.00	

CALCULATING THE PER CENT OF MARKUP BASED ON SELLING PRICE

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>
79.	\$28.00	\$36.00	
80.	45.00	49.95	
81.	121.00	128.95	
82.	175.00	200.00	
83.	215.30	315.05	

CALCULATING THE SELLING PRICE WITH MARKUP BASED ON COST

	<u>Cost</u>	<u>Markup</u>	<u>Selling Price</u>
84.	\$30.00	30%	
85.	18.00	19%	
86.	230.75	24%	
87.	225.85	35%	
88.	37.25	15%	

	<u>Cash Price</u>	<u>Installment Price</u>	<u>Carrying Charge</u>	<u>Down Payment</u>	<u>Months</u>	<u>Monthly Payment</u>
89/90	\$450.00	\$560.00	\$	\$50.00	10	\$
91/92	1,000.00	1,200.00		20.00	9	
93/94	1,205.00	1,430.00		150.00	8	
95/96	800.00	900.00		75.00	10	
97/98	450.00	700.00		200.00	6	
99/100	1,200.00	1,510.00		350.00	12	

KEY

ELECTRONIC CALCULATOR

- | | | | | | | | |
|-----|-----------|-----|--------------|-----|----------------|-----|----------------|
| (1) | 70 | (2) | .4168 | (3) | 57,926 | (4) | 18,830 |
| | 69 | | 2.27 | | <u>-48,621</u> | | <u>-21,400</u> |
| | 31 | | .103 | | 9,305 | | 2,570 Cr. |
| | 16 | | 33.1096 | | | | |
| | <u>24</u> | | <u>34.60</u> | | | | |
| | 210 | | 70.4994 | | | | |
-
- (5) 18.43
 $- 1.065$
 2.2107
 -14.18
 $\underline{3.2}$
 8.5957
- (6) $19 \times 45 = 855$
- (7) $7.22 \times 18.9 = 136.458$
- (8) $16 \times 15 \times 3 \times 8 = 5,760$
- (9) $16.5 \times 45.3 \times 19.2 = 14,351.04$
- (10) $48.5 \times 6.19 \times 14.3 = 4,293.0745$
- (11) $(92 \times 15) - (14 \times 22) = 1,072$
- (12) $(20 \times 32) - (17 \times 102) = 1,094$ Cr.
- (13) $(49 \times 12) - (44 \times 29) = 688$ Cr.
- (14) 200 doz. at \$1.45 = \$290
- (15) 48 doz. at \$1.45 = \$69.60
- (16) 18 doz. at \$1.45 = \$26.10
- (17) 43 doz. at \$1.45 = \$62.35
- (18) 434 doz. at \$1.45 = \$629.30
- (19) 135 doz. at \$1.45 = \$195.75
- (20) 57 doz. at \$1.45 = \$82.65

$$(21) \quad 18 \div 4 = 4.5$$

$$(22) \quad 97.6 \div 12 = 8.13333$$

$$(23) \quad 402 \div 1.02 = 394.11765$$

$$(24) \quad 13,709 \div 41 = 334.36585$$

$$(25) \quad 749 \div 16 = 46.8125$$

$$(26) \quad 195 \div 413 = .47215$$

$$(27) \quad 405 \div 2.36 = 171.61017$$

$$(28) \quad 1,047 \div 2.725 = 384.22018$$

$$(29) \quad 14,501 \div 18.25 = 794.57534$$

$$(30) \quad 70,201 \div 65 = 1,080.01538$$

INTEREST CALCULATION

	<u>Amount of Principle</u>	<u>Interest Rate</u>	<u>Period of Time</u>	<u>Amount to be Repaid</u>
(31)	\$ 580.00	3 1/2%	52 days	\$ 582.89
(32)	400.00	6%	60 days	403.95
(33)	1,500.00	6 1/2%	66 days	1,517.63
(34)	4,500.00	6%	90 days	4,566.58
(35)	16,000.00	4%	75 days	16,131.51
(36)	7,995.00	5 1/2%	20 days	8,019.09
(37)	3,500.00	5%	190 days	3,591.10
(38)	7,800.00	4 3/4%	60 days	7,860.90
(39)	10,500.00	7%	50 days	10,600.68
(40)	12,775.00	8%	100 days	13,055.00

~~_____~~
~~_____~~ 411
~~_____~~

	<u>Quantity</u>	<u>Unit Price</u>	<u>Extension</u>
41.	18	\$4.18	\$ 75.24
42.	70	3.23	226.10
43.	12	1.90	22.80
44.	40	3.22	128.80
45.	15	3.09	46.35
46.	25	4.07	101.75
47.	5	.18	.90
48.	15	7.06	105.90
49.	10	4.66	46.60
50.	30	.70	21.00
51.		TOTAL	<u>775.44</u>
52.		3% Sales Tax	<u>23.26</u>
53.		Amount Due	<u>798.70</u>

412



DISCOUNTS AND NET AMOUNTS

	<u>Amount</u>	<u>Discount Rate</u>	<u>Amount of Discount</u>	<u>Net Amount</u>
54/55	\$300.00	4 1/2%	\$ 13.50	\$286.50
56/57	300.00	5%	15.00	285.00
58/59	400.00	9%	36.00	364.00
60/61	1,450.00	5 1/2%	79.75	1,370.25
62/63	93.00	6 3/4%	6.28	86.72
64/65	195.50	6%	11.73	183.77
66/67	620.00	11%	68.20	551.80
68/69	89.65	3%	2.69	86.96
70/71	240.29	4 3/4%	11.41	228.88
72/73	540.00	13%	70.20	469.80

CALCULATING THE PER CENT OF MARKUP BASED ON COST

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>
74.	\$13.00	\$21.00	61.54%
75.	3.95	5.30	34.18%
76.	160.19	200.00	24.85%
77.	195.10	220.00	12.76%
78.	280.00	310.00	10.71%

413

CALCULATING THE PER CENT OF MARKUP BASED ON SELLING PRICE

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>
79.	\$28.00	\$36.00	22.22%
80.	45.00	49.95	9.91%
81.	121.00	128.95	6.17%
82.	175.00	200.00	12.5%
83.	215.30	315.05	31.66%

CALCULATING THE SELLING PRICE WITH MARKUP BASED ON COST

	<u>Cost</u>	<u>Markup</u>	<u>Selling Price</u>
84.	\$30.00	30%	\$39.00
85.	18.00	19%	21.42
86.	230.75	24%	286.13
87.	225.85	35%	304.90
88.	37.85	15%	43.53

	<u>Cash Price</u>	<u>Installment Price</u>	<u>Carrying Charge</u>	<u>Down Payment</u>	<u>Months</u>	<u>Monthly Payment</u>
89/90	\$450.00	\$560.00	\$110.00	\$50.00	10	\$51.00
91/92	1,000.00	1,200.00	200.00	20.00	9	131.11
93/94	1,205.00	1,430.00	225.00	150.00	8	160.00
95/96	800.00	900.00	100.00	75.00	10	82.50
97/98	450.00	700.00	250.00	200.00	6	83.33
99/100	1,200.00	1,510.00	310.00	350.00	12	96.67

$$\begin{array}{r} 1. \quad 60 \\ \quad 69 \\ \quad 31 \\ \quad 16 \\ \quad \underline{22} \end{array}$$

$$\begin{array}{r} 2. \quad .4158 \\ \quad 2.21 \\ \quad \quad .103 \\ \quad 33.1096 \\ \quad \underline{34.60} \end{array}$$

$$\begin{array}{r} 3. \quad 58,920 \\ \quad \underline{-48,621} \end{array}$$

$$\begin{array}{r} 4. \quad 17,520 \\ \quad \underline{-21,400} \end{array}$$

$$\begin{array}{r} 5. \quad 18:43 \\ \quad - 1.065 \\ \quad \quad 2.2107 \\ \quad -14.18 \\ \quad \underline{3.2} \end{array}$$

$$6. \quad 19 \times 45 =$$

$$7. \quad 7.23 \times 18.9 =$$

$$8. \quad 15 \times 15 \times 3 \times 8 =$$

$$9. \quad 15.3 \times 45.3 \times 19.2 =$$

$$10. \quad 49.5 \times 6.19 \times 14.3 =$$

$$11. \quad (67 \times 17) - (14 \times 22) =$$

$$12. \quad (20 \times 32) - (17 \times 102) =$$

$$13. \quad (45 \times 15) - (44 \times 29) =$$

$$14. \quad 200 \text{ doz. at } \$1.30 =$$

$$15. \quad 48 \text{ doz. at } \$1.30 =$$

$$16. \quad 18 \text{ doz. at } \$1.30 =$$

$$17. \quad 43 \text{ doz. at } \$1.30 =$$

$$18. \quad 434 \text{ doz. at } \$1.30 =$$

$$19. \quad 135 \text{ doz. at } \$1.30 =$$

$$20. \quad 57 \text{ doz. at } \$1.30 =$$

435



21. $20 \div 4 =$

22. $98.9 \div 14 =$

23. $307 \div 1.02 =$

24. $12,809 \div 43 =$

25. $675 \div 19 =$

26. $176 \div 413 =$

27. $405 \div 2.36 =$

28. $1000 \div 2.725 =$

29. $14,702 \div 18.25 =$

30. $70,201 \div 65 =$

INTEREST CALCULATION

	<u>Amount of Principle</u>	<u>Interest Rate</u>	<u>Period of Time</u>	<u>Amount to be Repaid</u>
31.	\$550	3 1/2%	52 days	
32.	400	6%	60 days	
33.	2,200	6 1/2%	66 days	
34.	4,500	6%	90 days	
35.	16,000	4%	75 days	
36.	7,975	5 1/2%	20 days	
37.	2,500	5%	190 days	
38.	7,000	4 3/4%	60 days	
39.	11,624	7%	50 days	
40.	14,905	8%	100 days	

	<u>Quantity</u>	<u>Unit Price</u>	<u>Extension</u>
41.	15	\$4.18	
42.	70	3.23	
43.	12	1.90	
44.	50	3.22	
45.	16	3.09	
46.	30	4.07	
47.	6	.18	
48.	20	7.06	
49.	15	4.66	
50.	30	.70	
51.		TOTAL	_____
52.		3% Sales Tax	_____
53.		Amount Due	_____

4.17

1.16

1.16

DISCOUNTS AND NET AMOUNTS

	<u>Amount</u>	<u>Discount Rate</u>	<u>Amount of Discount</u>	<u>Net Amount</u>
54/55	\$250.00	4 1/2%	\$	\$
56/57	310.00	5%		
58/59	415.00	9%		
60/61	1,260.00	5 1/2%		
62/63	105.00	6 3/4%		
64/65	200.50	6%		
66/67	600.22	11%		
68/69	75.55	3%		
70/71	245.20	4 3/4%		
72/73	500.00	13%		

CALCULATING THE PER CENT OF MARKUP BASED ON COST

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>
74.	\$12.00	\$21.00	
75.	4.94	5.30	
76.	150.19	200.00	
77.	195.20	220.00	
78.	210.00	225.00	

48



- | | | | |
|---|--|---|---|
| 1. 60
69
31
16
<u>22</u>
198 | 2. .4158
2.21
.103
33.1096
<u>34.60</u>
70.4384 | 3. 58,920
<u>-48,621</u>
10,299 | 4. 17,520
<u>-21,100</u>
-3,880 |
|---|--|---|---|
-
- | | |
|---|---|
| 5. 18.43
- 1.065
2.2107
-14.18
<u>3.2</u>
8.5957 | 6. 19 x 45 = 855

7. 7.23 x 18.9 = 136.647

8. 15 x 15 x 3 x 8 = 5400

9. 15.3 x 45.3 x 19.2 = 13,307.328

10. 49.5 x 6.19 x 14.3 = 4,381.5915 |
|---|---|
-
- | |
|--|
| 11. (67 x 17) - (14 x 22) = 831

12. (20 x 32) - (17 x 102) = 1,094 Cr.

13. (45 x 15) - (44 x 29) = 601 Cr.

14. 200 doz. at \$1.30 = \$260

15. 48 doz. at \$1.30 = \$62.40

16. 18 doz. at \$1.30 = \$23.40

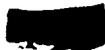
17. 43 doz. at \$1.30 = \$55.90

18. 434 doz. at \$1.30 = \$564.20

19. 135 doz. at \$1.30 = \$175.50

20. 57 doz. at \$1.30 = \$74.10 |
|--|

419



21. $20 \div 4 = 5$
22. $98.9 \div 14 = 7.06429$
23. $307 \div 1.02 = 300.98039$
24. $12,809 \div 43 = 297.88372$
25. $675 \div 19 = 35.52632$
26. $176 \div 413 = .42615$
27. $405 \div 2.36 = 171.61017$
28. $1000 \div 2.725 = 366.97248$
29. $14,702 \div 18.25 = 805.58904$
30. $70,201 \div 65 = 1,080.01538$

INTEREST CALCULATION

	<u>Amount of Principle</u>	<u>Interest Rate</u>	<u>Period of Time</u>	<u>Amount to be Repaid</u>
31.	\$550	3 1/2%	52 days	\$ 552.74
32.	400	6%	60 days	403.95
33.	2,200	6 1/2%	66 days	2,225.86
34.	4,500	6%	90 days	4,566.58
35.	16,000	4%	75 days	16,131.51
36.	7,975	5 1/2%	20 days	7,999.03
37.	2,500	5%	190 days	2,565.07
38.	7,000	4 3/4%	60 days	7,054.66
39.	11,624	7%	50 days	11,735.46
40.	14,905	8%	100 days	15,231.68

4.0

	<u>Quantity</u>	<u>Unit Price</u>	<u>Extension</u>
41.	15	\$4.18	\$ 62.70
42.	70	3.23	226.10
43.	12	1.90	22.80
44.	50	3.22	161.00
45.	16	3.09	49.44
46.	30	4.07	122.10
47.	6	.18	1.08
48.	20	7.06	141.20
49.	15	4.66	69.90
50.	30	.70	21.00
51.		TOTAL	<u>877.32</u>
52.		3% Sales Tax	<u>26.32</u>
53.		Amount Due	<u>903.64</u>



DISCOUNTS AND NET AMOUNTS

	<u>Amount</u>	<u>Discount Rate</u>	<u>Amount of Discount</u>	<u>Net Amount</u>
54/55	\$250.00	4 1/2%	\$ 11.25	\$ 238.75
56/57	310.00	5%	15.50	294.50
58/59	415.00	9%	37.35	377.65
60/61	1,260.00	5 1/2%	69.30	1,190.70
62/63	105.00	6 3/4%	7.09	97.91
64/65	200.50	6%	12.03	188.47
66/67	600.22	11%	66.02	534.20
68/69	75.55	3%	2.27	73.28
70/71	245.20	4 3/4%	11.65	233.55
72/73	500.00	13%	65.00	435.00

CALCULATING THE PER CENT OF MARKUP BASED ON COST

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>
74.	\$ 12.00	\$ 21.00	75%
75.	4.94	5.30	7.29%
76.	150.19	200.00	33.16%
77.	195.20	220.00	12.70%
78.	210.00	225.00	7.14%

4/2



4/2

CALCULATING THE PER CENT OF MARKUP BASED ON SELLING PRICE

	<u>Cost</u>	<u>Selling Price</u>	<u>Percent of Markup</u>
79.	\$ 26.00	\$ 36.00	27.78%
80.	48.00	49.95	3.9%
81.	123.00	128.95	4.61%
82.	175.50	200.00	12.25%
83.	215.32	315.05	31.66%

CALCULATING THE SELLING PRICE WITH MARKUP BASED ON COST

	<u>Cost</u>	<u>Markup</u>	<u>Selling Price</u>
84.	\$ 20.00	30%	\$ 26.00
85.	18.75	19%	22.31
86.	235.75	24%	292.33
87.	230.82	35%	311.61
88.	35.85	15%	41.23

	<u>Cash Price</u>	<u>Installment Price</u>	<u>Carrying Charge</u>	<u>Down Payment</u>	<u>Months</u>	<u>Monthly Payment</u>
89/90	\$510.00	\$560.00	\$ 50.00	\$ 50.00	10	\$ 51.00
91/92	980.00	1,200.00	220.00	20.00	9	131.11
93/94	1,215.00	1,430.00	215.00	150.00	8	160.00
95/96	750.00	900.00	150.00	75.00	10	82.50
97/98	475.00	700.00	225.00	200.00	6	83.33
99/100	1,100.00	1,510.00	410.00	350.00	12	96.67

443

EVALUATION OF OFFICE MACHINES PACKAGES

Please check the package being evaluated:

1. Ten-key adding-listing machine

Victor Burroughs

2. Ten-key calculator

Victor Olivetti-Underwood

3. Full-key adding-listing machine

Victor

4. Rotary calculator

Friden Automatic Monroe

Marchant Semi-Automatic Monroe

5. Electronic calculator

Olympia

1. Were the directions for this package clear? Check one.

Very Clear Clear Confusing

Very Confusing

If directions were not clear, at what point were they confusing?
Be as specific as possible so this can be clarified.

2. Were exercises adequate? Check one.

Very adequate Adequate

Inadequate Very Inadequate

3. Was package as a whole any of the following:

Stimulating Boring Fun

Dull Helpful Useless

Too Difficult Too Easy

4. Other comments:

4. 5.186

You have become skilled on the rotary calculator, the ten-key calculator, the ten-key adding-listing machine, and the full-key adding-listing machine.

Please list the advantages and disadvantages of each machine on the next four pages.

Please give me your overall evaluation of this course.

~~187~~

426

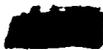
ELECTRONIC CALCULATOR

ADVANTAGES:

DISADVANTAGES:

4-7

193



ROTARY CALCULATOR

ADVANTAGES :

DISADVANTAGES :



TEN-KEY CALCULATOR

ADVANTAGES :

DISADVANTAGES :

4.9

190

TEN-KEY ADDING LISTING MACHINE

ADVANTAGES :

DISADVANTAGES :

~~420~~ 430

FULL-KEY ADDING LISTING MACHINE

ADVANTAGES :

DISADVANTAGES :