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SE 007 584

Skill-Level Grouping in Modern Mathematics K-6; Attachment I.

Clark County School District, Las Vegas, Nev.

Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research.

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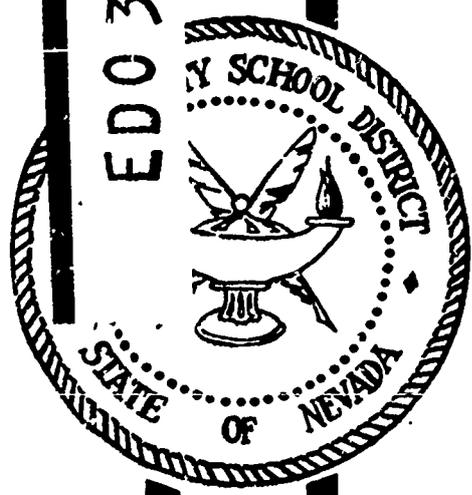
Identifiers-Nevada

Included in this document are tests used to assess achievement in mathematics (K-6) in an experimental study conducted in the Clark County School District in Nevada. Each test is designed to assess learning at a definite skill level. Included are directions for administering each test, behavioral objectives assessed by each test and each test item, and desired answers for each test item. This document is the best copy available of the report. [Not available in hard copy due to marginal legibility of original document]. (RP)

BR 8-I-065
PA 24
OE/BR

ATTACHMENT I

EDO 33048



CLARK COUNTY SCHOOL DISTRICT

FINAL REPORT

Project No. 8-1-065
Grant No. OEG-9-8-081065-0159(010)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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SKILL-LEVEL GROUPING IN MODERN MATHEMATICS K-6

June, 1969

BEST COPY AVAILABLE

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

SE007 284

MATHEMATICS CONCEPTS TEST

Basic Test: Level One
(Grade One)

ANSWER KEY AND TEACHERS' GUIDE

Please read every item to the children. The entire class should work on each item simultaneously. Note special comments on certain items. Comments and answers are written in long hand. You should have both the students copy and Teachers' Guide before you as you give the test.

Timed Tests: These should not be given with the other part. Timing is extremely important, if we are to test the objective as stated in the curriculum guide. Place paper face down on student's desk. At the signal have students turn the papers over and begin working. Be sure to call "stop" in exactly 3 min. or 2 min., as the case may be.

Excluding the timed tests, this is a 105 problem test. Since some items have more than one part, the written numerals in () are to help you in scoring. This should probably be given in two different sessions. You may break it according to your judgement.

A CROSS REFERENCE OF OBJECTIVES FROM THE CLARK COUNTY CURRICULUM GUIDE AND ITEMS IN THE MATHEMATICS COVERAGE TEST

CODE: "N" means number strand; "Nu" means numeration strand; "O" means operations strand; "G" means geometry strand; and, "M" means measurement strand.

An example: M-4 means objective #4 in the measurement strand.

OBJECTIVE # ITEM #

N-1	1
N-2	2,3
N-3	4-6
N-5	7
N-6	8-10
N-7	11-13
N-4	14-15
N-8	16-18
N-9	19-21
N-10	22,23

Nu-1	24-27
Nu-2	28-30, 35-45
Nu-3	50-59
Nu-4	31-34
Nu-5	46-49
Nu-6	19-21

O-1	60
O-2	61-63
O-3	64-66
O-4	67
O-5	+ & - facts
O-6	68,69
O-7	70-75
O-8	76
O-9	77
O-10	78
O-11	79-81
O-12	82-85

OBJECTIVE # ITEM #

G-1	86-89
G-2	90-91
G-3	NC
G-4	92-95

M-1	97
M-2	96
M-3	98
M-4	99-100
M-5	NC
M-6	102
M-7	104,105
M-8	104,105

Items 101 and 103 problem solving.

NC means not covered.

EXAMINER'S GUIDE

Please read every item to the children. Have students read silently while you read aloud. The entire class should work on each item simultaneously. Note special comments on certain items. Comments are written in long hand.

At the end are 2 timed tests. These should not be given with the other part. Timing is extremely important, if we are to test the objective as stated in the curriculum guide. Excluding the timed tests, this is a 105 item test. The test should probably be given in at least two different sessions. You may break it according to your judgement.

MATHEMATICS CONCEPTS TEST

Basic Test: Level One

Part I

Name _____	Last _____	_____	First _____	_____	Middle _____
Teacher _____	School _____	Grade _____			
Date _____	Test Score -- Part I _____				

DIRECTIONS TO STUDENTS

1. Write your name and other information on the top of this sheet.
2. Write your answers on the test booklet.

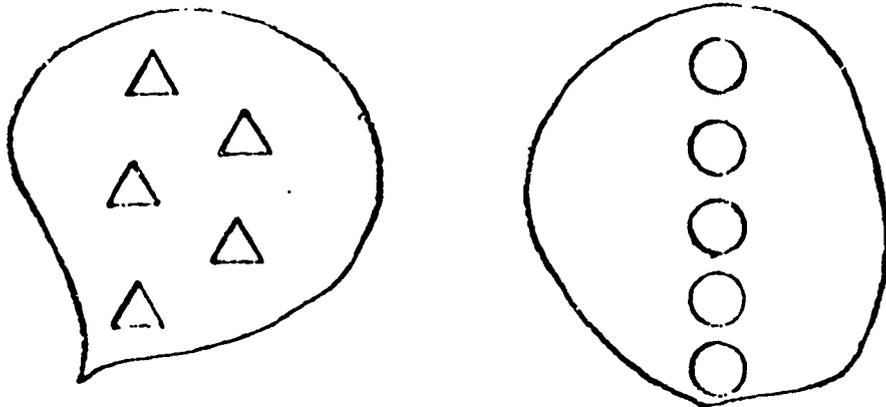
MATHEMATICS CONCEPTS TEST

Basic Test: Level One

1. Look at this set of numerals. Draw a ring around the object which is not a member of the set of numerals.

{1, 2, 3, 4, M, 5, 6} *Emphasize "not."*

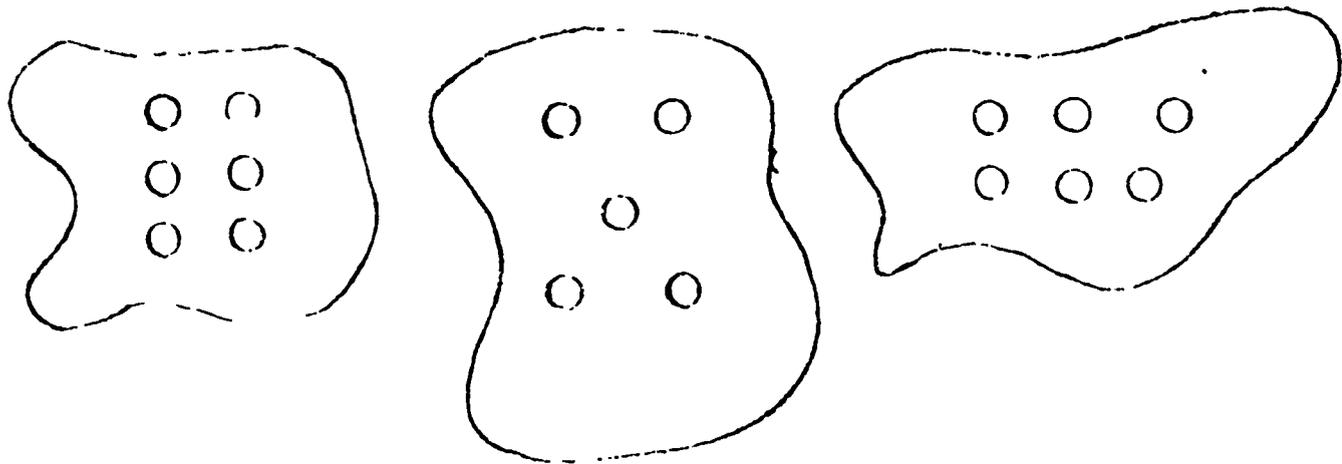
2. Are these sets equivalent? Circle the answer. YES NO



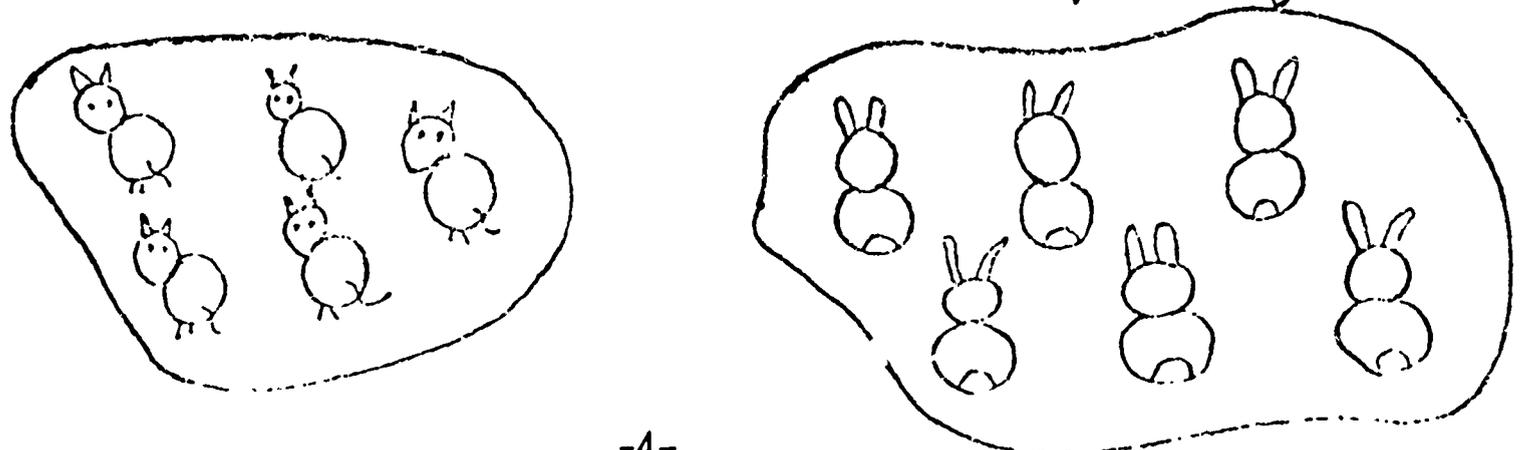
Do not explain the word "equivalent."

3. Match by one-to-one correspondence to check your answer to the question in number 2 above.

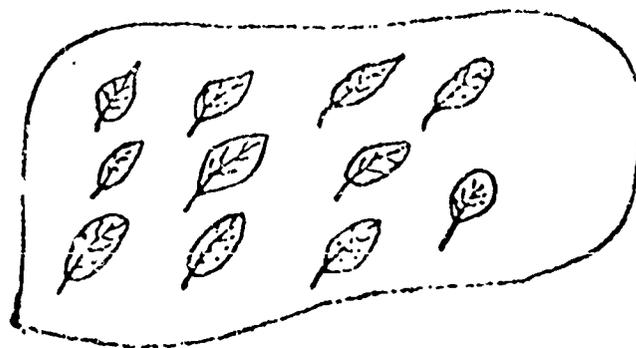
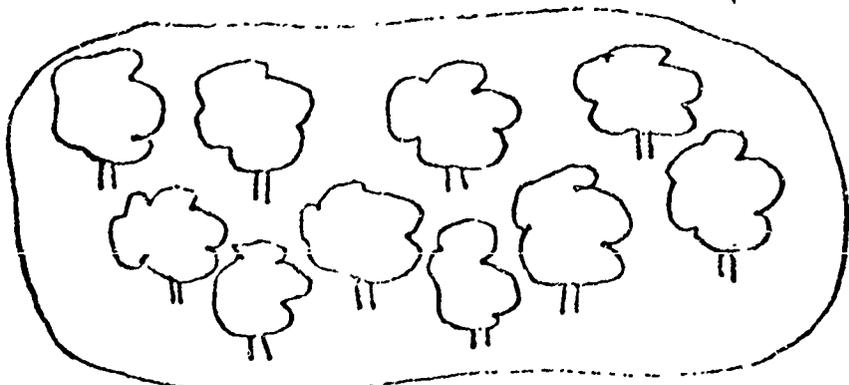
4. Put an "X" on each of the two equivalent sets.



5. Put an "X" on the set that has more members. *Emphasize "more."*



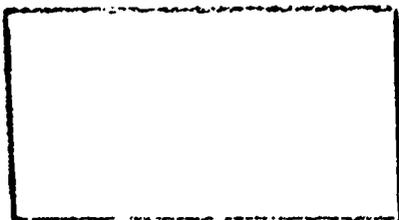
6. Put an "X" on the set that has less or fewer members.



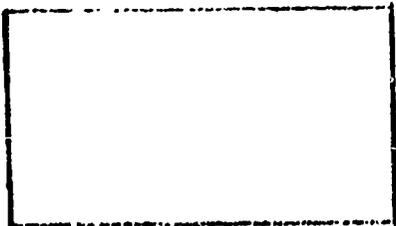
7. How many members are there in the set of elephants on the ceiling of this room?

MAKE THREE SUBSETS FROM THE SET AT THE RIGHT:

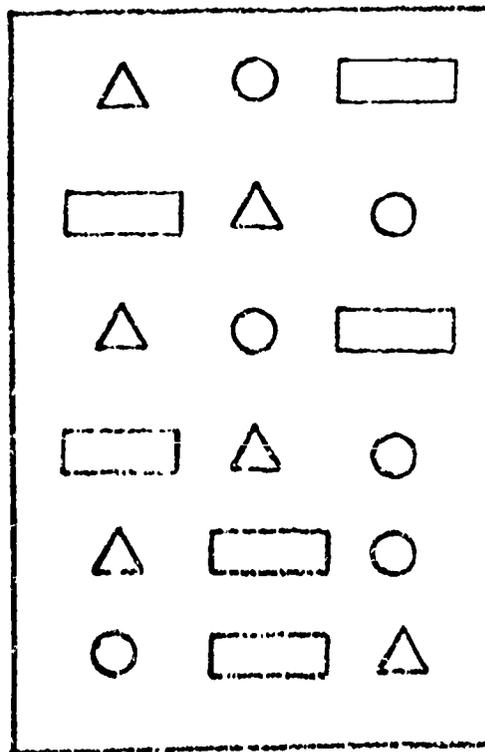
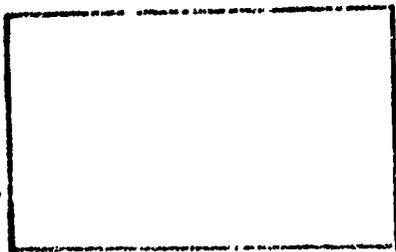
8.
The set
of O's



9.
The set
of Δ's

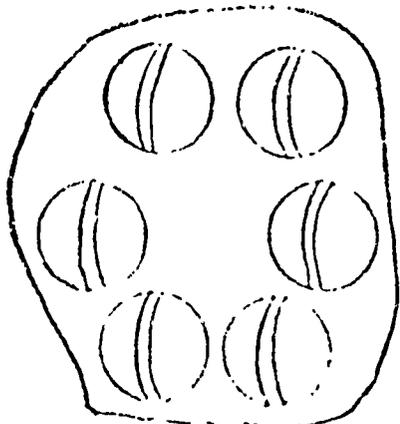


10.
The set
of □'s

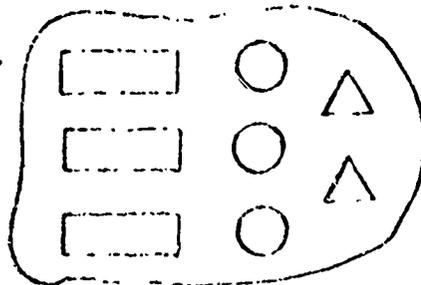


WRITE THE CARDINAL NUMBER FOR EACH SET: *Do not define "cardinal"*

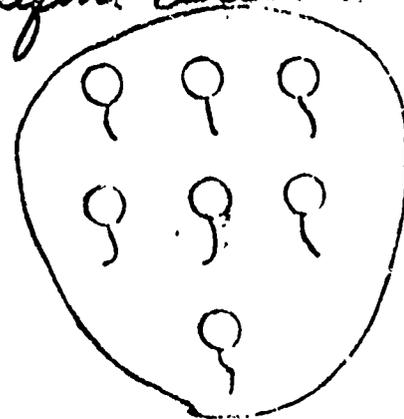
11.



12.



13.



14. Order these numerals from greater than to less than:

2, 5, 7, 4, 9, 6, 0, 3, 8, 1

____, _____, _____, _____, _____, _____, _____, _____, _____, _____

15. Order these numerals less than to greater than:

4, 0, 7, 9, 6, 3, 5, 2, 1, 8

____, _____, _____, _____, _____, _____, _____, _____, _____, _____

16. Order these numerals from greater than to less than:

19, 23, 34, 17, 28, 53, 11

____, _____, _____, _____, _____, _____, _____

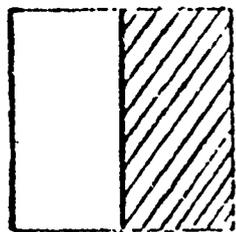
USE THE SYMBOL $<$ OR $>$ TO ORDER THESE PAIRS:

17. 57 53

18. 46 54

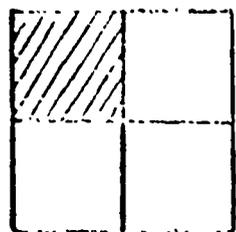
Read the symbols as "less than" and "greater than."

19. Circle the fraction below the box that shows the fractional part of the box that is shaded.



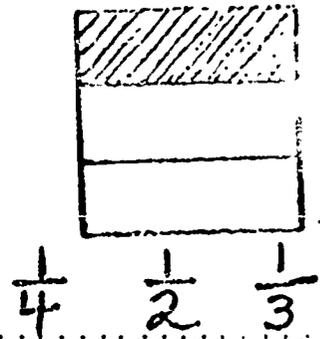
$\frac{1}{4}$ $\frac{1}{3}$ $\frac{1}{2}$

20. Circle the fraction below the box that shows the fractional part of the box that is shaded.



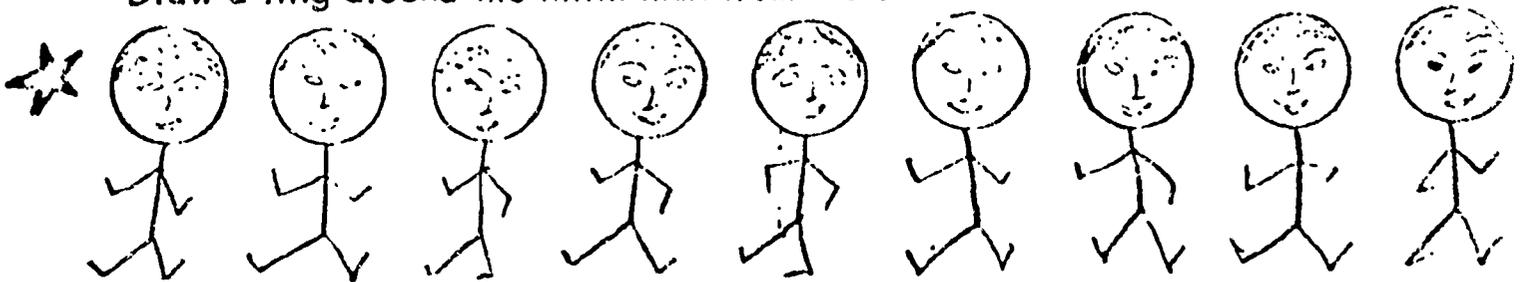
$\frac{1}{4}$ $\frac{1}{3}$ $\frac{1}{2}$

21. Circle the fraction below the box that shows the fractional part of the box that is shaded.



22. Put an "X" on the fifth man from the star.

23. Draw a ring around the ninth man from the star.



PUT "X" ON EACH NUMERAL BELOW THAT NAMES THE SAME NUMBER AS 5.

24. $4 + 1$

25. $2 + 3$

26. $6 + 2$

27. $7 - 2$

COLOR ENOUGH CIRCLES TO MAKE A SET OF: *you may tell them to shade or put in an "X" if you don't have colors.*

28. $\boxed{5}$ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○

29. $\boxed{8}$ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○

30. $\boxed{10}$ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○

PUT AN "X" ON THE NUMERAL IN THE TENS' PLACE:

31. 69

32. 127

DRAW A RING AROUND THE NUMERAL IN THE ONES' PLACE:

33. 88

34. 156

MATCH (DRAW LINE SEGMENTS)

- | | | |
|-----|-------|----|
| 35. | three | 5 |
| 36. | five | 1 |
| 37. | one | 3 |
| 38. | two | 6 |
| 39. | four | 7 |
| 40. | six | 2 |
| 41. | seven | 0 |
| 42. | ten | 4 |
| 43. | eight | 8 |
| 44. | nine | 10 |
| 45. | zero | 9 |

46. Write the expanded numeral for 19
- Example: $14 = 10 + 4$
47. Write the expanded numeral for 42
- } Call attention to the example.

48. Write the numeral for:
2 tens and 4 ones _____
49. Write the numeral for:
5 tens and 6 ones _____



BESIDE EACH NUMERAL WRITE ITS NUMBER WORD

50. _____ 1
51. _____ 2
52. _____ 3
53. _____ 4
54. _____ 5
55. _____ 6
56. _____ 7
57. _____ 8
58. _____ 9
59. _____ 10

60. Draw sets of marbles for this equation:

$$5 + 3 = 8$$

61. Here is a set of 14 marbles. Draw "X's" on 8 of the marbles.



62. How many marbles are left? _____

63. So we may say $14 - 8 =$ _____

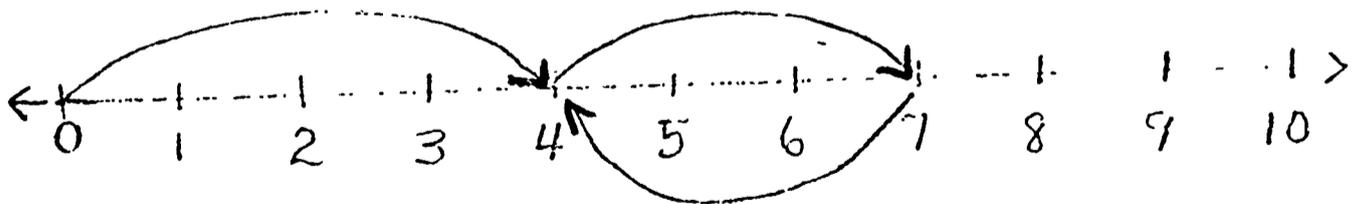
64. Here is a set of 6 \triangle 's. Draw enough to make a total of 15 \triangle 's.



65. How many triangles did you draw? _____

66. So we may say $6 +$ _____ $= 15$

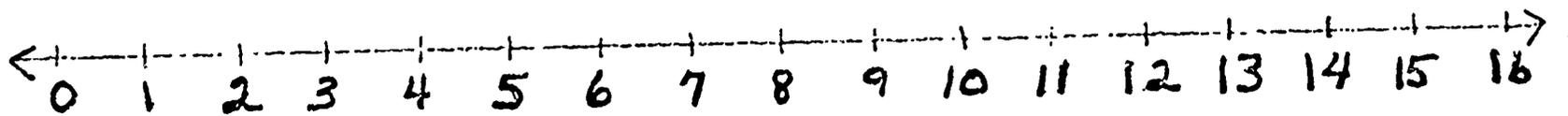
67. Look at this number line.



If $4 + 3 = 7$, fill in the blank to make this statement true.

7 _____ $= 4$

Explain that both an operation symbol and a numeral is needed.



USE THE NUMBER LINE ABOVE TO FIND THE DIFFERENCE OR SUM

68. $12 - 8 = \underline{\quad}$

69. $7 + 8 = \underline{\quad}$

PUT A NUMERAL IN EACH OF THE BOXES TO MAKE THE SENTENCE TRUE:

70. $2 + \square = 5$

71. $5 + \square = 8$

72. $4 + 2 = \square$

73. $10 - 8 = \square$

74. $\square + 4 = 9$

75. $\square - 2 = 6$

76. Put the operational sign (+ or -) in the box to make this a true statement.

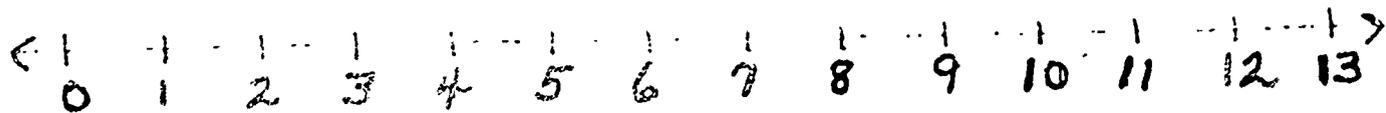
$7 \square 8 = 15$

77. If $4 + 7 = 11$, does $7 + 4 = 11$?

Circle the right answer.

YES

NO



78. Use the number line above to find the answer.

$$(7 + 3) + 2 = \underline{\quad} + \underline{\quad} = \underline{\quad}$$

SOLVE THESE PROBLEMS:

79. $0 + 13 = \square$

80. $6 - 6 = \square$

81. $17 + \square = 17$

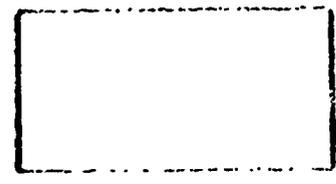
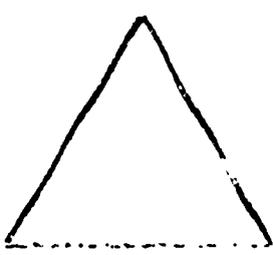
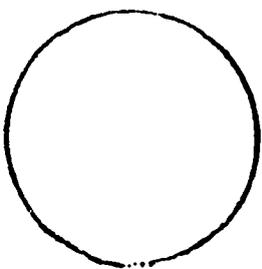
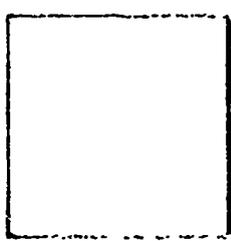
82.
$$\begin{array}{r} 2 \\ 3 \\ 1 \\ + 4 \\ \hline \end{array}$$

83.
$$\begin{array}{r} 3 \\ 4 \\ 1 \\ + 2 \\ \hline \end{array}$$

84.
$$\begin{array}{r} 12 \\ + 21 \\ \hline \end{array}$$

85.
$$\begin{array}{r} 25 \\ - 12 \\ \hline \end{array}$$

86.
87.
88.
89.



Put a "1" in the circle

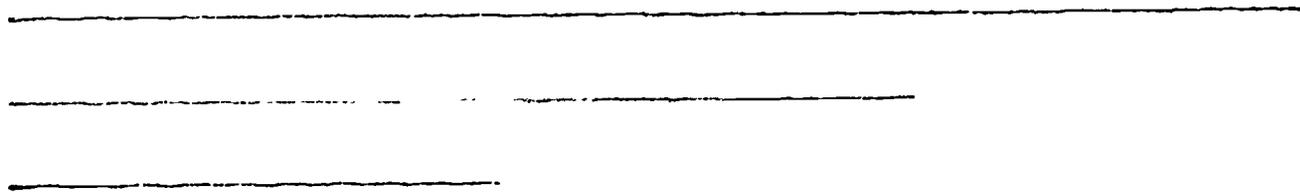
Put a "2" in the rectangle

Put a "3" in the square

Put a "4" in the triangle

90. Using the 3 line segments below, put an "X" on the longest line segment.

91. Using the 3 line segments below, put an "O" on the shortest line segment.



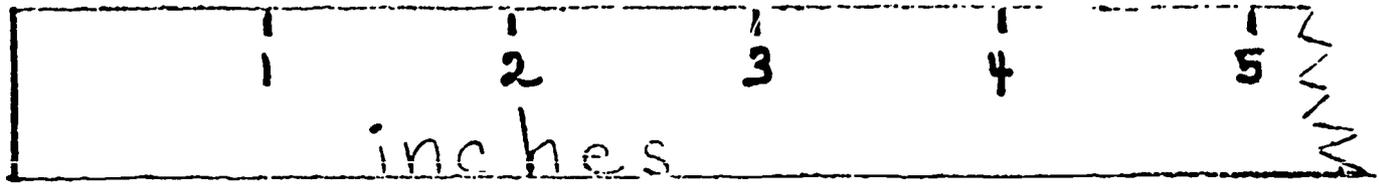
92. Draw a square.

93. Draw a rectangle.

94. Draw a triangle.

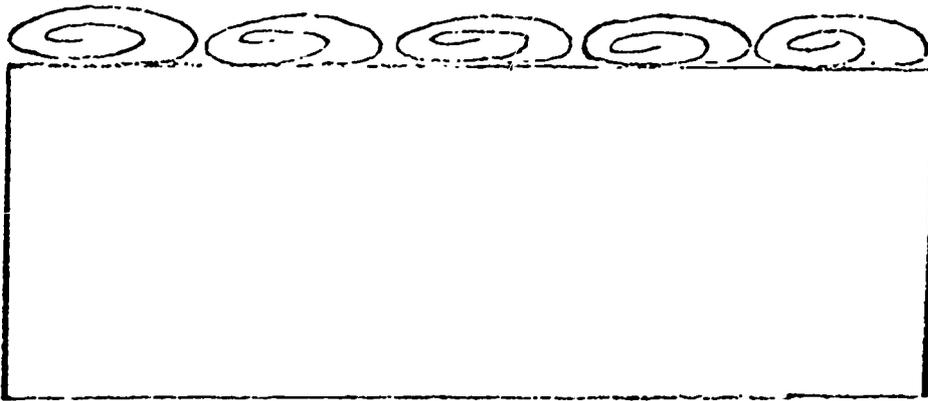
95. Draw a circle.

96.



Look at the picture of the pencil and the ruler. How many inches long is the pencil?

97.



Look at the picture of the box and paper clips.

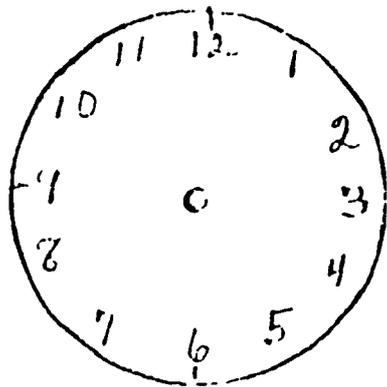
How many paper clips long is the box? _____

98. If a pint holds 2 cups, is 3 cups more or less than a pint? Draw a ring around the correct answer.

MORE

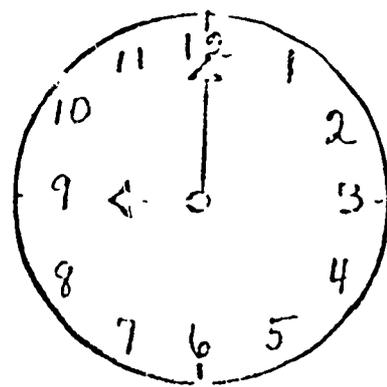
LESS

99. Draw the hands to show the time that is written under the clock.

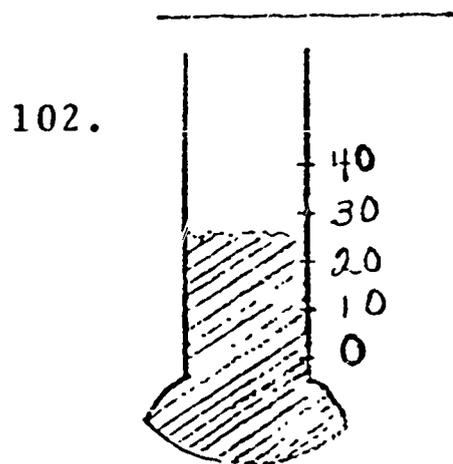


3:00

100. Look at the picture of the clock. What time is it?



101. Dana had two dimes. He spent one dime for ice cream. He needs 2¢ more to buy a top. What does the top cost?



Look at the picture of the thermometer.
The temperature is between _____ and _____ degrees.

103. Crayons cost 25¢.

Cathy has 2 dimes and a nickel.

Susan has 1 dime and 2 pennies.

Put an "X" on the name of the girl who can buy the crayons.

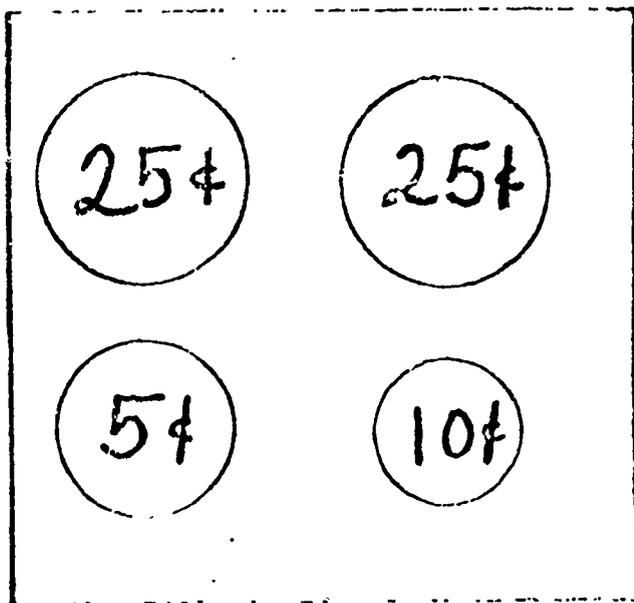
Cathy

Susan

Count the money in each box.

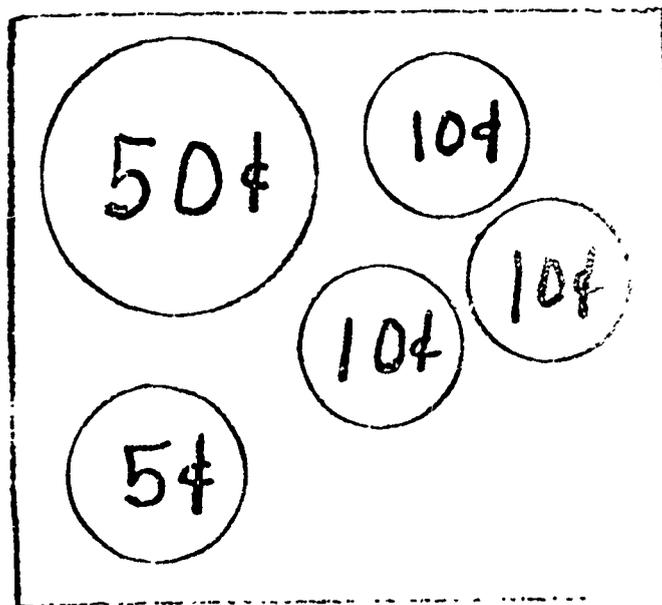
Write the amount on the line below the box.

104.



_____ ¢

105.



_____ ¢

MATHEMATICS CONCEPTS TEST

Basic Test: Level One

Part II - Timed

Name	Last	First	Middle
Teacher	School	Grade	
Date	Test Score -- Part II		

DIRECTIONS TO STUDENTS

1. Write your name and other information on the top of this sheet.
2. Write your answers on the test booklet.

Place test paper in each corner of student's desk. At your signal they may turn the paper over and start working. Do not turn in all tests at 1/2 way. 3 minutes.

Addition Test

Time Limit: 3 min.

$$\begin{array}{r} 0 \\ + 3 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ + 1 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ + 2 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ + 1 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ + 1 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ + 2 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ + 1 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ + 0 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ + 2 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ + 4 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ + 3 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ + 8 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ + 1 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ + 4 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ + 6 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ + 6 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ + 2 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ + 3 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ + 2 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ + 9 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ + 1 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ + 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ + 3 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ + 4 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ + 3 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ + 4 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ + 0 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ + 5 \\ \hline \end{array}$$

$$\begin{array}{r} 0 \\ + 0 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ + 4 \\ \hline \end{array}$$

use the same procedure reviewed for the addition test, except for the 5 minute time limit

Subtraction Test

Time Limit: 2 min.

$$\begin{array}{r} 9 \\ -0 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ -1 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ -2 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ -4 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ -3 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ -2 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ -1 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ -2 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ -4 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ -7 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ -3 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ -6 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ -6 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ -5 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ -4 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ -5 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ -1 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ -3 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ -6 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ -3 \\ \hline \end{array}$$

ANSWER KEY

PART I	105 items	12 pages
TIMED TESTS	50 items	2 pages
TOTAL	<u>155</u> items	

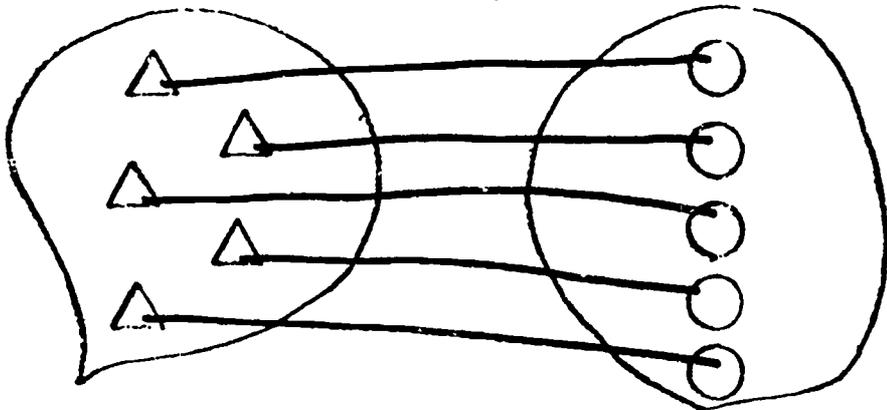
MATHEMATICS CONCEPTS TEST

Basic Test: Level One

1. Look at this set of numerals. Draw a ring around the object which is not a member of the set of numerals.

{1, 2, 3, 4, M, 5, 6}

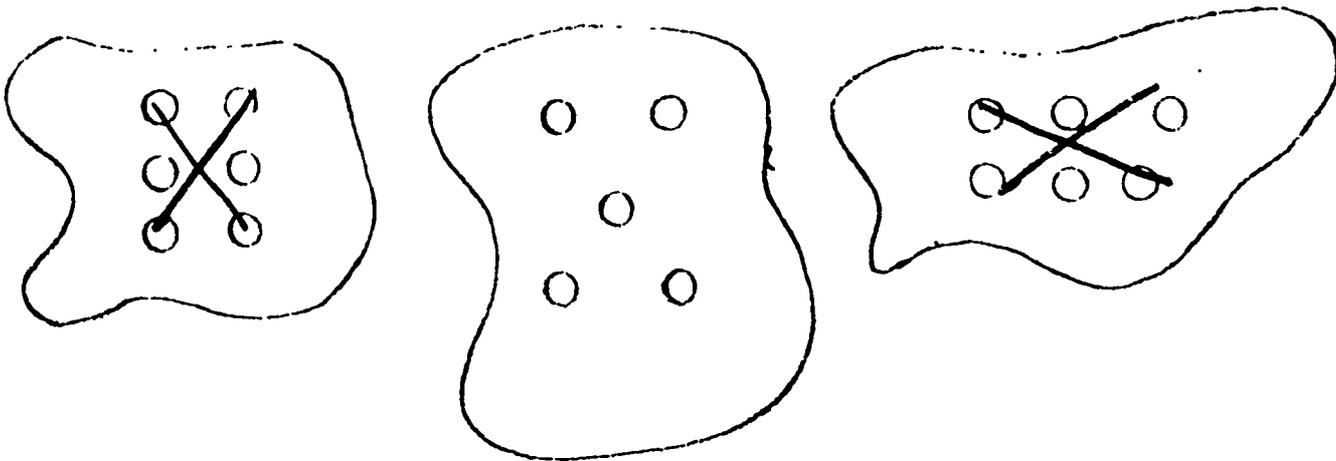
2. Are these sets equivalent? Circle the answer. YES NO



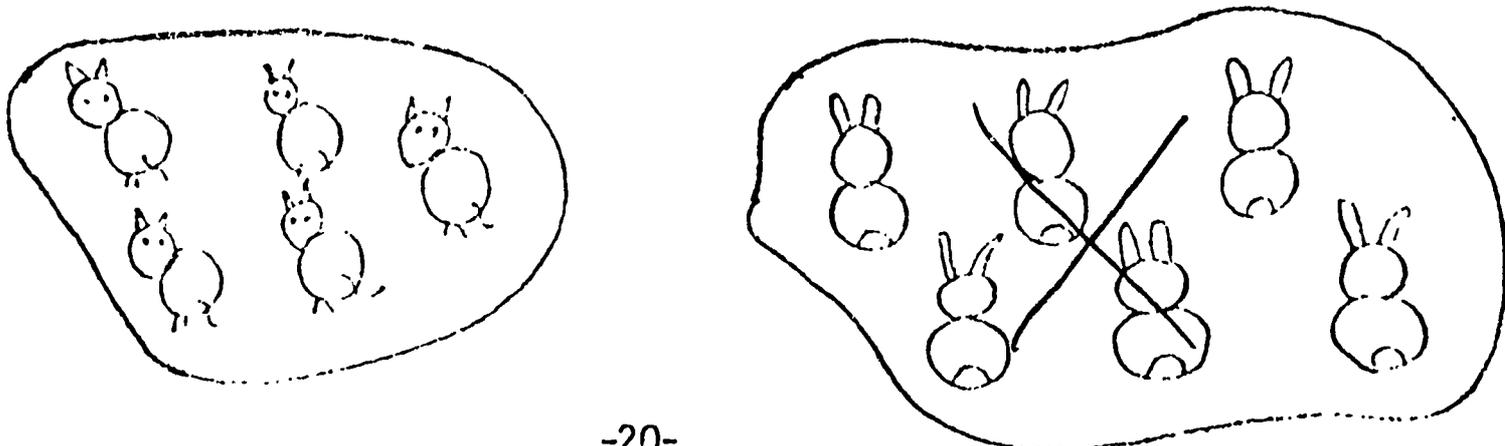
any 1 to 1 matching is correct.

3. Match by one-to-one correspondence to check your answer to the question in number 2 above.

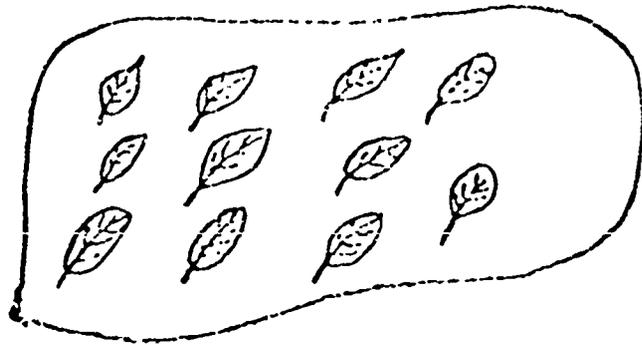
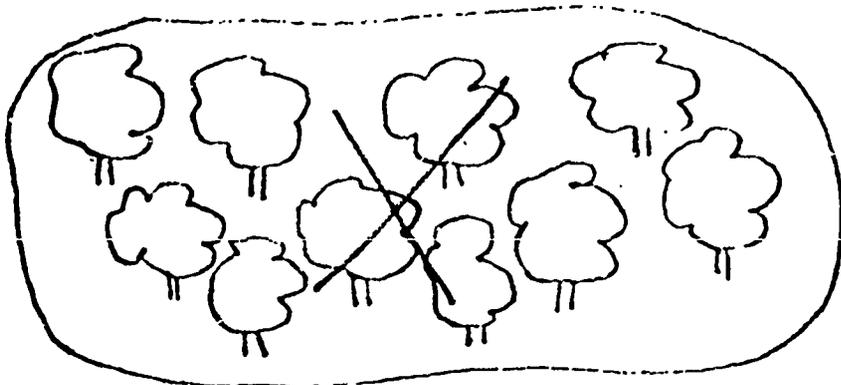
4. Put an "X" on each of the two equivalent sets.



5. Put an "X" on the set that has more members.



6. Put an "X" on the set that has less or fewer members.

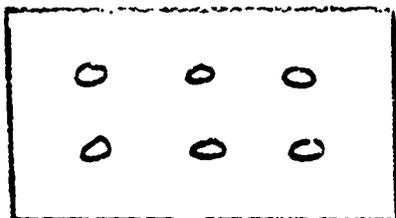


7. How many members are there in the set of elephants on the ceiling of this room?

0

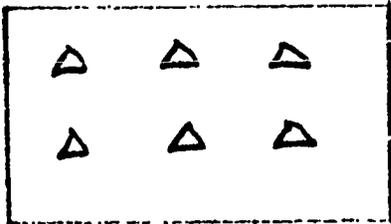
MAKE THREE SUBSETS FROM THE SET AT THE RIGHT:

8.
The set
of O's



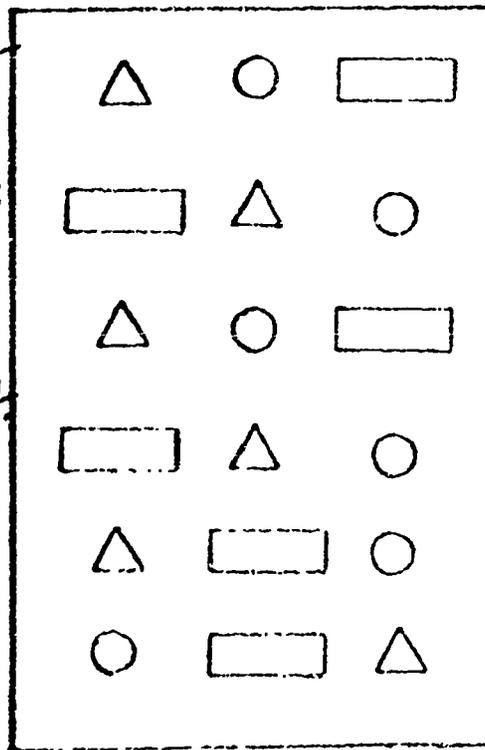
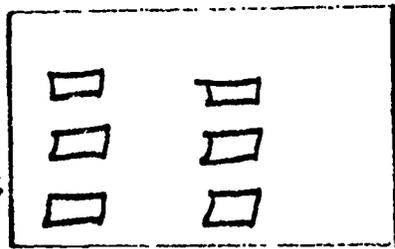
Any arrangement within a box is correct.

9.
The set
of Δ's



Only the number is important.

10.
The set
of □'s



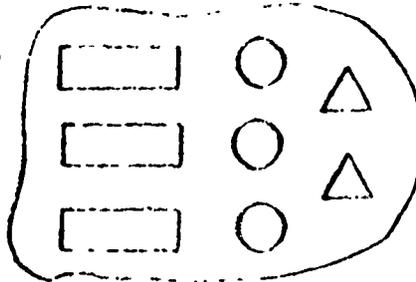
WRITE THE CARDINAL NUMBER FOR EACH SET:

11.



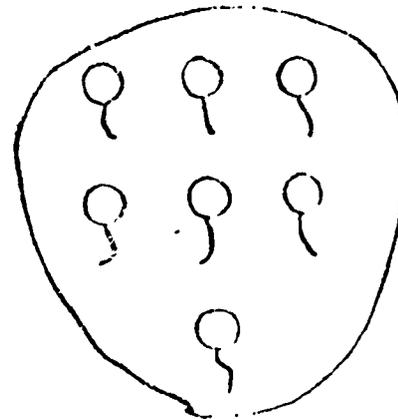
6

12.



8

13.



7

numeral
replaced
values
the item
wrong.

14. Order these numerals from greater than to less than:

2, 5, 7, 4, 9, 6, 0, 3, 8, 1
9, 8, 7, 6, 5, 4, 3, 2, 1, 0

15. Order these numerals less than to greater than:

4, 0, 7, 9, 6, 3, 5, 2, 1, 8
0, 1, 2, 3, 4, 5, 6, 7, 8, 9

16. Order these numerals from greater than to less than:

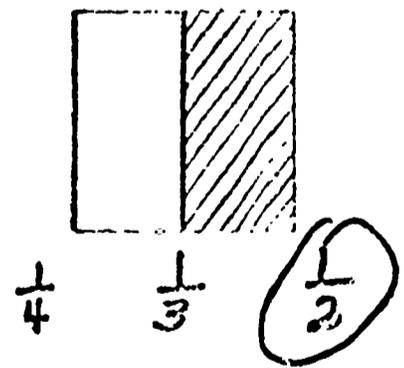
19, 23, 34, 17, 28, 53, 11
53, 34, 28, 23, 19, 17, 11

USE THE SYMBOL $<$ OR $>$ TO ORDER THESE PAIRS:

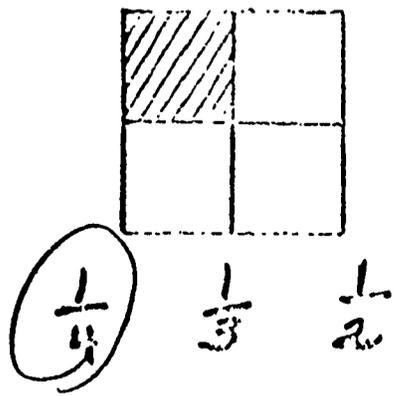
17. $57 > 53$

18. $46 < 54$

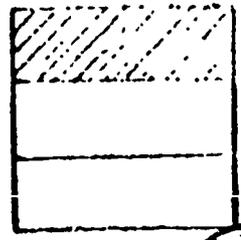
19. Circle the fraction below the box that shows the fractional part of the box that is shaded.



20. Circle the fraction below the box that shows the fractional part of the box that is shaded.



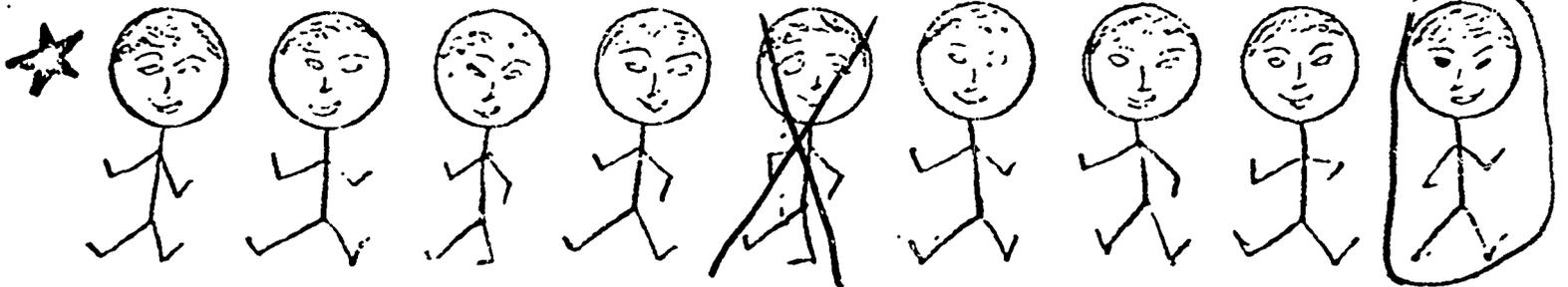
21. Circle the fraction below the box that shows the fractional part of the box that is shaded.



$\frac{1}{4}$ $\frac{1}{2}$ $\frac{1}{3}$

22. Put an "X" on the fifth man from the star.

23. Draw a ring around the ninth man from the star.



PUT "X" ON EACH NUMERAL BELOW THAT NAMES THE SAME NUMBER AS 5.

24. ~~4~~ ~~1~~ 1

25. ~~2~~ ~~4~~ 3

26. 6 + 2

27. ~~7~~ ~~2~~

COLOR ENOUGH CIRCLES TO MAKE A SET OF:

Which 5 or 8 colored is important.

28. 5 ● ● ● ● ● ○ ○ ○ ○ ○

29. 8 ● ● ● ● ● ● ● ● ○ ○

30. 10 ● ● ● ● ● ● ● ● ● ●

PUT AN "X" ON THE NUMERAL IN THE TENS' PLACE:

31. ~~6~~ 9

32. 1 ~~2~~ 7

DRAW A RING AROUND THE NUMERAL IN THE ONES' PLACE:

33. 8 (8)

34. 15 (6)

MATCH (DRAW LINE SEGMENTS)

35.	three	5
36.	five	1
37.	one	3
38.	two	6
39.	four	7
40.	six	2
41.	seven	0
42.	ten	4
43.	eight	8
44.	nine	10
45.	zero	9

It is correct with or without the equal sign.

46. Write the expanded numeral for

$$19 = 10 + 9$$

Example: $14 = 10 + 4$

47. Write the expanded numeral for

$$42 = 40 + 2$$

48. Write the numeral for:

2 tens and 4 ones

24

49. Write the numeral for:

5 tens and 6 ones

56

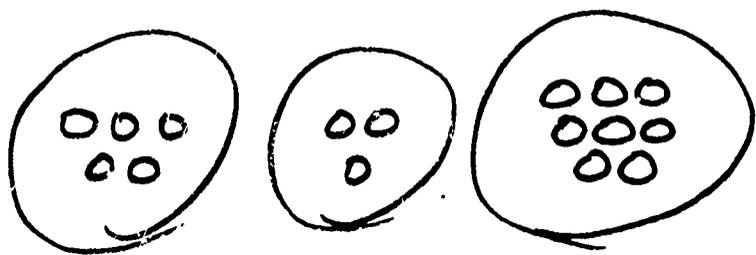
BESIDE EACH NUMERAL WRITE ITS NUMBER WORD

50. One 1
51. two 2
52. three 3
53. four 4
54. five 5
55. six 6
56. seven 7
57. eight 8
58. nine 9
59. Ten 10

Spelling must be correct.

60. Draw sets of marbles for this equation:

$$5 + 3 = 8$$



It is correct with or without rings. The arrangement of marbles within each set is unimportant. The number of marbles in each set is the only thing of import

61. Here is a set of 14 marbles. Draw "X's" on 8 of the marbles.

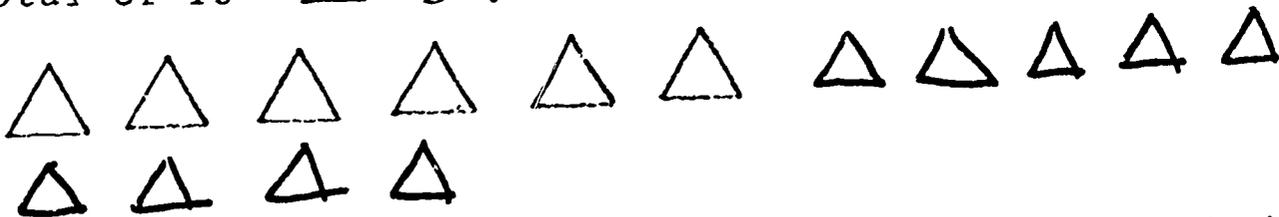


Any 8 circles may be crossed out.

62. How many marbles are left? 6

63. So we may say $14 - 8 = 6$

64. Here is a set of 6 \triangle 's. Draw enough to make a total of 15 \triangle 's.

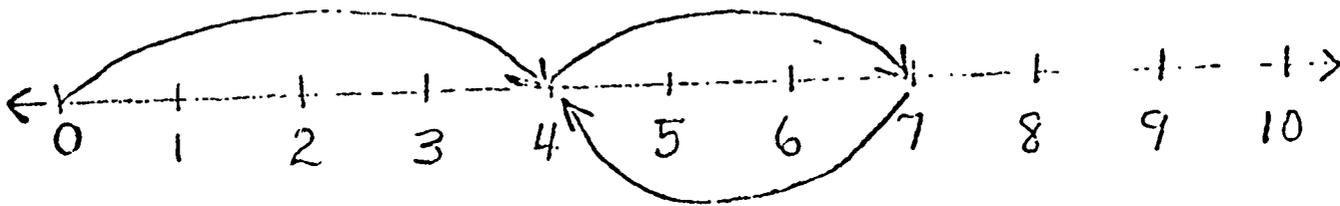


Any arrangement of 9 more triangles is correct.

65. How many triangles did you draw? 9

66. So we may say $6 + 9 = 15$

67. Look at this number line.



If $4 + 3 = 7$, fill in the blank to make this statement true.

$7 - 3 = 4$



Do Not count these wrong if the pupil gets the answer right but doesn't show any work & USE THE NUMBER LINE ABOVE TO FIND THE DIFFERENCE OR SUM #2.

68. $12 - 8 = 4$

69. $7 + 8 = 15$

PUT A NUMERAL IN EACH OF THE BOXES TO MAKE THE SENTENCE TRUE.

70. $2 + \boxed{3} = 5$

71. $5 + \boxed{3} = 8$

72. $4 + 2 = \boxed{6}$

73. $10 - 8 = \boxed{2}$

74. $\boxed{5} + 4 = 9$

75. $\boxed{8} - 2 = 6$

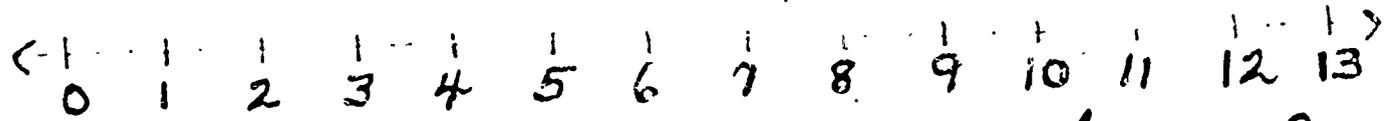
76. Put the operational sign (+ or -) in the box to make this a true statement.

$7 \boxed{+} 8 = 15$

77. If $4 + 7 = 11$, does $7 + 4 = 11$? Circle the right answer.

YES

NO



See comment on item numbers 68 and 69.

78. Use the number line above to find the answer.

$$(7 + 3) + 2 = \underline{10} + \underline{2} = \underline{12}$$

SOLVE THESE PROBLEMS:

79. $0 + 13 = \boxed{13}$

80. $6 - 6 = \boxed{0}$

81. $17 + \boxed{0} = 17$

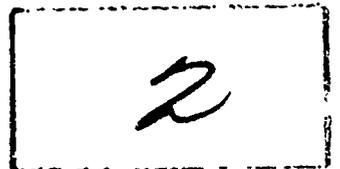
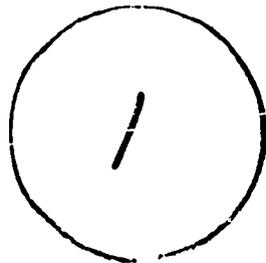
82.
$$\begin{array}{r} 2 \\ 3 \\ 1 \\ + 4 \\ \hline 10 \end{array}$$

83.
$$\begin{array}{r} 3 \\ 4 \\ 1 \\ + 2 \\ \hline 10 \end{array}$$

84.
$$\begin{array}{r} 12 \\ + 21 \\ \hline 33 \end{array}$$

85.
$$\begin{array}{r} 25 \\ - 12 \\ \hline 13 \end{array}$$

86.
87.
88.
89.



Put a "1" in the circle

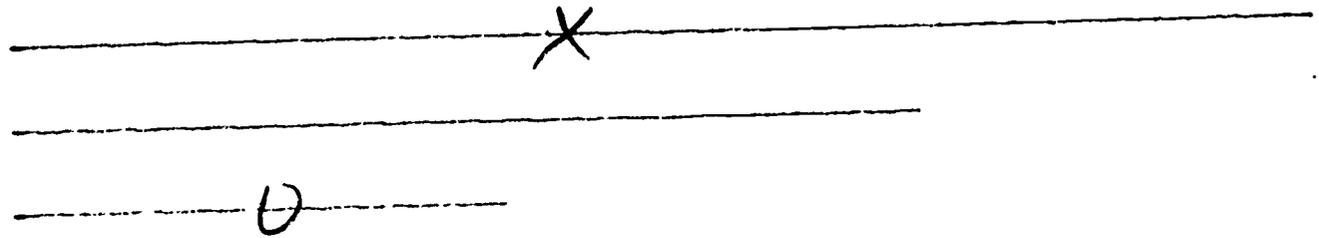
Put a "2" in the rectangle

Put a "3" in the square

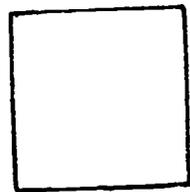
Put a "4" in the triangle

90. Using the 3 line segments below, put an "X" on the longest line segment.

91. Using the 3 line segments below, put an "O" on the shortest line segment.



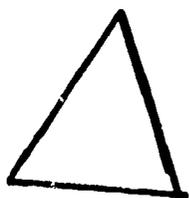
92. Draw a square.



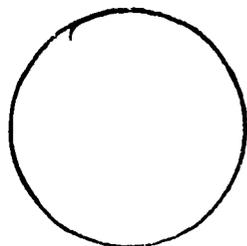
93. Draw a rectangle.



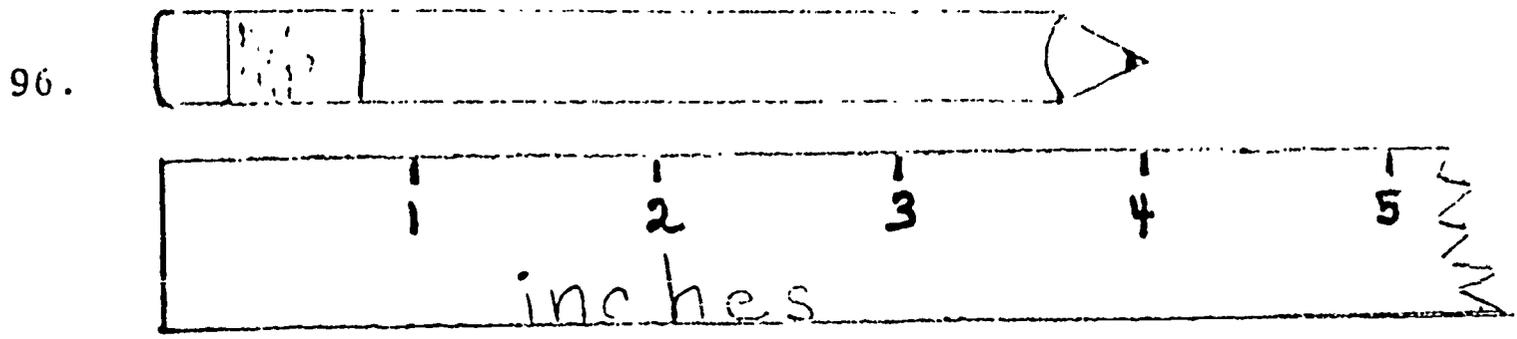
94. Draw a triangle.



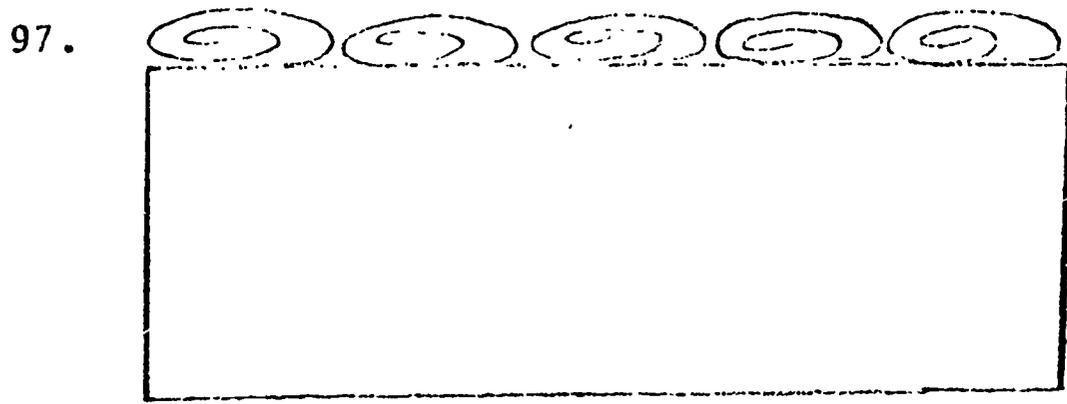
95. Draw a circle.



*For items 92-95,
any "reasonably
recognizable" figure
is acceptable.*



Look at the picture of the pencil and the ruler. How many inches long is the pencil? 4



Look at the picture of the box and paper clips.
How many paper clips long is the box? 5

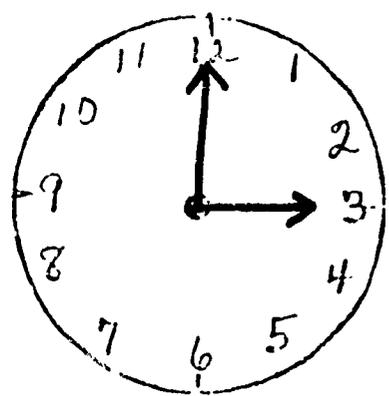
98. If a pint holds 2 cups, is 3 cups more or less than a pint? Draw a ring around the correct answer.

MORE

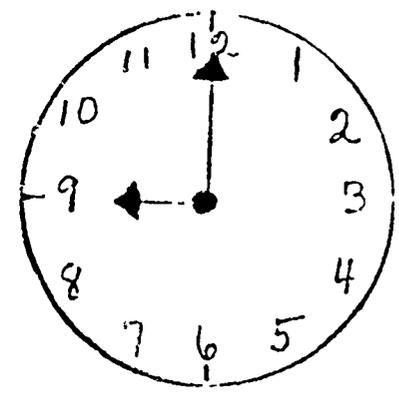
LESS

99. Draw the hands to show the time that is written under the clock.

100. Look at the picture of the clock. What time is it?



3:00

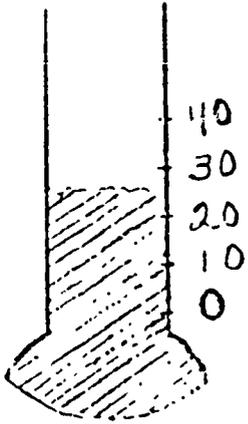


9:00

101. Dana had two dimes. He spent one dime for ice cream. He needs 2¢ more to buy a top. What does the top cost?

12¢

102.



Look at the picture of the thermometer. The temperature is between

20 and 30

degrees or, other acceptable answers are:

103. Crayons cost 25¢.

Cathy has 2 dimes and a nickel.

Susan has 1 dime and 2 pennies.

Put an "X" on the name of the girl who can buy the crayons.

0 and 40

0 and 30

10 and 40

20 and 40

10 and 30

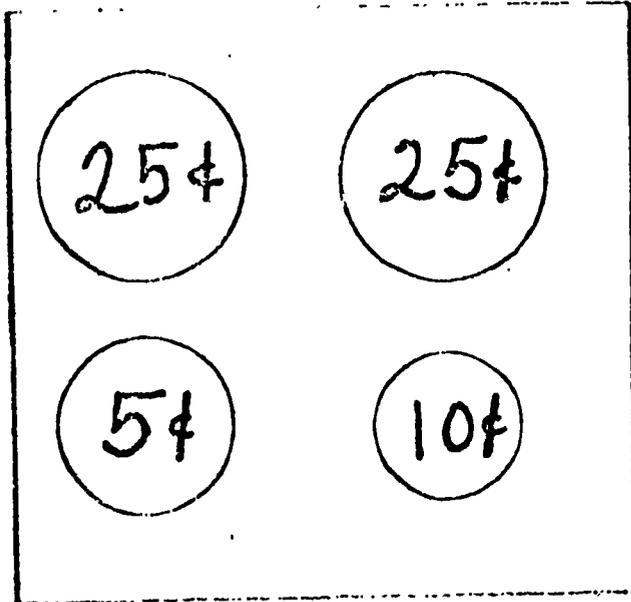
~~Cathy~~

Susan

Count the money in each box.

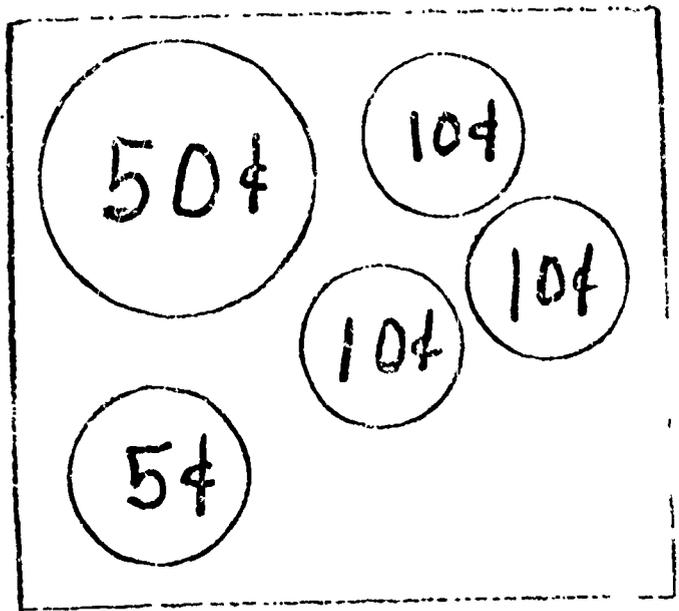
Write the amount on the line below the box.

104.



65¢

105.



85¢

Addition Test

Time Limit: 3 min.

$$\begin{array}{r} 0 \\ + 3 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 1 \\ + 1 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 1 \\ + 2 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 3 \\ + 1 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 4 \\ + 1 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 2 \\ + 2 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 7 \\ + 1 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 4 \\ + 0 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 3 \\ + 2 \\ \hline 5 \end{array}$$

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

$$\begin{array}{r} 4 \\ + 3 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 2 \\ + 8 \\ \hline 10 \end{array}$$

$$\begin{array}{r} 5 \\ + 1 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 5 \\ + 4 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 3 \\ + 6 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 1 \\ + 6 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 6 \\ + 2 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 3 \\ + 3 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 5 \\ + 2 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 1 \\ + 9 \\ \hline 10 \end{array}$$

$$\begin{array}{r} 8 \\ + 1 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 4 \\ + 5 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 5 \\ + 3 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 2 \\ + 4 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 7 \\ + 3 \\ \hline 10 \end{array}$$

$$\begin{array}{r} 6 \\ + 4 \\ \hline 10 \end{array}$$

$$\begin{array}{r} 10 \\ + 0 \\ \hline 10 \end{array}$$

$$\begin{array}{r} 5 \\ + 5 \\ \hline 10 \end{array}$$

$$\begin{array}{r} 0 \\ + 0 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 3 \\ + 4 \\ \hline 7 \end{array}$$

Subtraction Test

Time Limit: 2 min.

$$\begin{array}{r} 9 \\ -0 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 1 \\ -1 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 3 \\ -2 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 6 \\ -4 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 8 \\ -3 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 2 \\ -2 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 2 \\ -1 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 4 \\ -2 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 8 \\ -4 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 9 \\ -7 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 7 \\ -3 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 8 \\ -6 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 9 \\ -6 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 10 \\ -5 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 7 \\ -4 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 9 \\ -5 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 9 \\ -1 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 5 \\ -3 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 10 \\ -6 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 10 \\ -3 \\ \hline 7 \end{array}$$

MATHEMATICS CONCEPTS TEST

Basic Test: Level Two
(Grade Two)

ANSWER KEY AND TEACHERS' GUIDE

Please read all items to your class. This means the entire class is working on the same item at the same time. Note special comments on certain items. Comments and answers are written in long hand. You should have both the Teachers' Guide and a student copy of the test with you as you administer the test.

Timed Tests: These should not be given with the other part of the test. Timing is extremely important if we are to test the objective as stated in the curriculum guide. Place paper face down on student's desk. At the signal have students turn the paper over and begin working. Be sure to call "stop" in exactly 4 minutes.

This is a 98 problem test, excluding the timed tests. Since some items have more than one answer, the numerals in () have been placed to help you in scoring. You probably will not want to give the entire test in one session. You may use your own judgement concerning where to break it.

A CROSS REFERENCE OF OBJECTIVES FROM THE CLARK COUNTY CURRICULUM GUIDE AND ITEMS IN THE MATHEMATICS COVERAGE TEST

CODE: "N" means number strand; "Nu" means numeration strand; "O" means operations strand; "G" means geometry strand; and, "M" means measurement strand.

An example: M-4 means objective #4 in the measurement strand.

OBJECTIVE # ITEM #

N-1	1
N-2	2, 3
N-3	NC
N-4	4
N-5	5
N-6	6
N-7	7-12
N-8	13-15
N-9	16-18
N-10	19
Nu-1	20
Nu-2	21
Nu-3	22-26
Nu-4	27
Nu-5	28

Nu-6	16-18
------	-------

O-1	29, 30
O-2	31
O-3	32-35
O-4	+ & - facts
O-5	36-44
O-6	32-35
O-7	45
O-8	
O-9	46
O-10	47
O-11	48, 49
O-12	50, 52
O-13	51, 53

OBJECTIVE # ITEM #

O-14 & 15	54, 55
O-16	56, 57
O-17	68, 69
O-18 & 19	70, 71
O-20 & 21	72-74

G-1	58-63
G-2	64, 65
G-3	66, 67
G-4	75
G-5	NC
G-6 & 7	76-79
G-8	75
G-9	80

M-1	81
M-2	82
M-3	NC
M-4	83, 84
M-5	85
M-6	86
M-7	87
M-8	88-93
M-9	94
M-10	95-98

NC means not covered.

EXAMINER'S GUIDE

Please read every item to the children. Have students read silently while you read aloud. The entire class should work on each item simultaneously. Note special comments on certain items. Comments are written in long hand.

At the end are 2 timed tests. These should not be given with the other part. Timing is extremely important, if we are to test the objective as stated in the curriculum guide. Excluding the timed tests, this is a 98 item test. The test should probably be given in at least two different sessions. You may break it according to your judgement.

MATHEMATICS CONCEPTS TEST

Basic Test: Level Two

Part I

Name _____ Last _____ First _____ Middle _____

Teacher _____ School _____ Grade _____

Date _____ Test Score -- Part I _____

DIRECTIONS TO STUDENTS

1. Write your name and other information on the top of this sheet.
2. Write your answers on the test booklet.

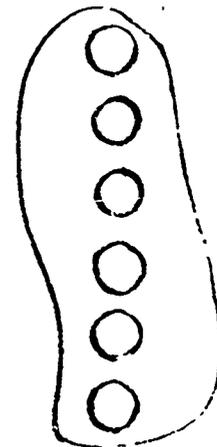
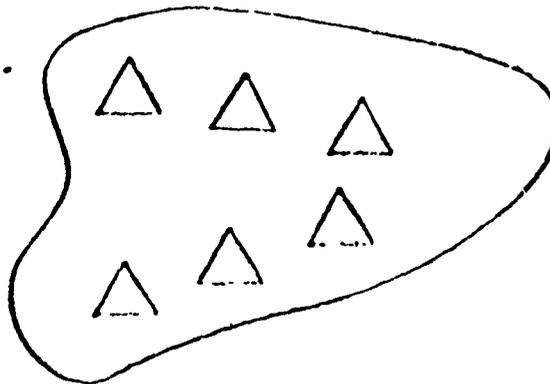
MATHEMATICS CONCEPTS TEST

Basic Test: Level Two

1. Look at this set. Put an "X" on the object which is not a member of the set of letters of the alphabet.

{A, C, 5, F, W} *Emphasize "not."*

2. Here are two sets.



Are these sets equivalent? Draw a ring around the correct answer.

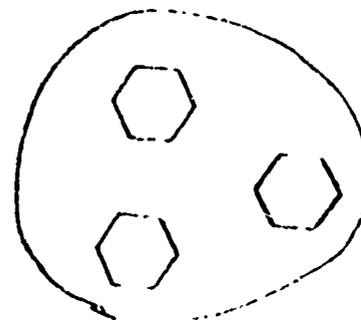
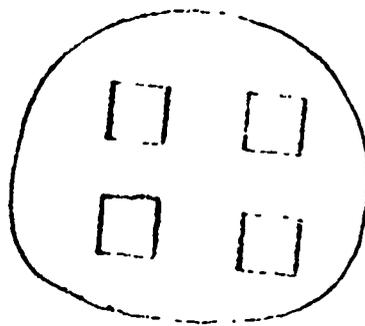
YES

NO

Do not explain "equivalent."

3. Match by one-to-one correspondence to check your answer.

4. Here are two sets.



Are these sets equivalent? Draw a ring around the correct answer.

YES

NO

If you said no, put an "X" on the set that has more members.

5. Read these sentences.

_____ A is the set of live boys in this room.

_____ B is the set of wild foxes in this room

_____ C is the set of girls in this room.

Put an "X" before the one which describes the empty set.

6. From this set, form a subset of the names of girls beginning with the letter S.

Subset = $\left\{ \begin{array}{l} \text{Sue, Jane, Mary, Sally} \\ \end{array} \right\}$

7. By drawing rings around sets of 2, count the number of x's in this set.

X X X X X

X X X X X

X X X X X

X X X X X

8. How many sets of 2 are there? _____

9. How many X's are there in all? _____

10. By drawings rings around sets of 5, count the number of Δ 's in this set.

Δ Δ Δ

11. How many sets of 5 are there? _____

12. How many Δ 's are there in all? _____

Write $<$, $>$ or $=$ in each \bigcirc to make these sentences true.

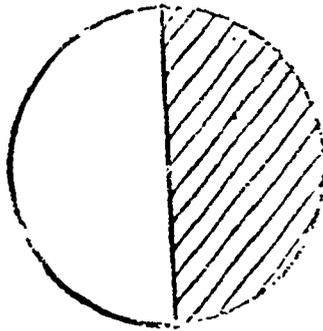
13. $15 + 12 \bigcirc 30$

14. $23 \bigcirc 20 + 3$

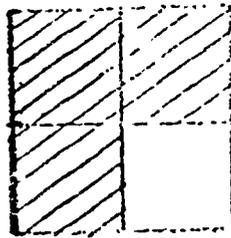
15. $17 + 5 \bigcirc 20$

Read the symbols as
"less than,"
"greater than," and
"equal to."

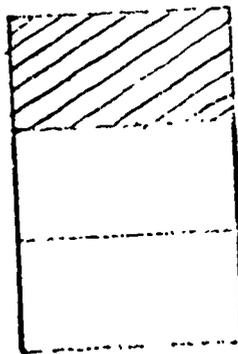
16. Write the fraction that names the part of the circle that is shaded.



17. Write the fraction that names the part of the square that is shaded.



18. Write the fraction that names the part of the rectangle that is shaded.



19. Look at the word "MATHEMATICS"
What is the tenth letter? _____

20. Put an "X" on the numeral which is not another name for 135.

- a) $100 + 30 + 5$
- b) $100 + 20 + 15$
- c) $100 + 5 + 30$
- d) $100 + 10 + 5$

21. Write three hundred twenty-four in this box. (a numeral)

MATCH THE NUMERAL WITH THE CORRECT WORD. DRAW A LINE SEGMENT TO CONNECT EACH PAIR.

- | | |
|---------------|----|
| 22. fourteen | 17 |
| 23. nine | 12 |
| 24. twenty | 14 |
| 25. twelve | 20 |
| 26. seventeen | 9 |

27. In 569, what digit is in the tens' place? _____

Look at this example.

28. EXAMPLE: $855 = 800 + 50 + 5$

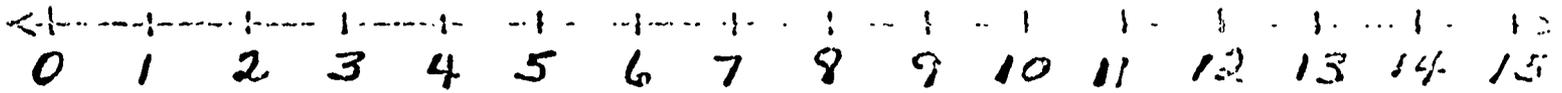
Write the expanded numeral for

749 = _____

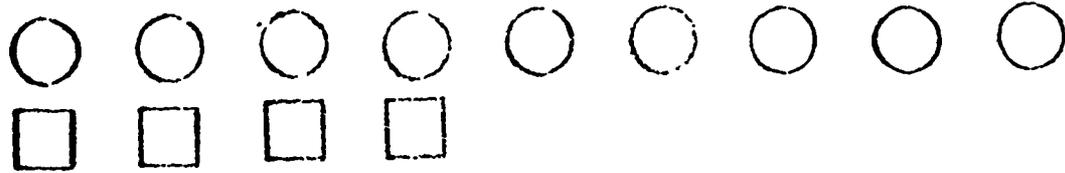
The number line must be used to get item 30 correct. Arrow heads are necessary. The jumps may be shown above or below the line.

29. Complete the following sentence. $6 + 8 = \square$

30. Show the above problem on this number line.



31. Write the number sentence that tells the difference between the number of \bigcirc 's and the number of \square 's.



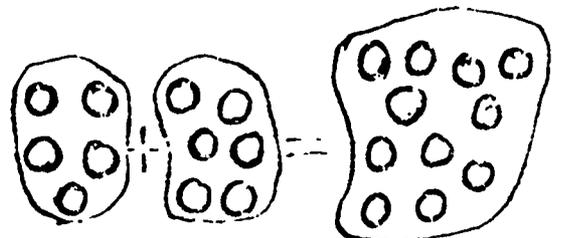
WRITE TWO ADDITION SENTENCES AND TWO SUBTRACTION SENTENCES RELATED TO THIS MODEL.

32. _____ + _____ = _____

33. _____ + _____ = _____

34. _____ - _____ = _____

35. _____ - _____ = _____



Put $+$ or $-$ in the circle to make these sentences true.

36. $14 \bigcirc 6 = 8$

37. $9 \bigcirc 3 = 6$

38. $9 \bigcirc 3 = 12$

WRITE A NUMERAL IN THE BOX TO MAKE THE FOLLOWING STATEMENTS TRUE.

39.
$$\begin{array}{r} 17 \\ - \square \\ \hline 8 \end{array}$$

40.
$$\begin{array}{r} 10 \\ + \square \\ \hline 18 \end{array}$$

41. $7 + \square = 15$

42. $\square - 6 = 4$

43. $9 + 5 = \square$

44. $12 - 7 = \square$

45. Complete this sentence.

$2 + 6 = 6 + \underline{\quad}$

46. $(3 + 2) \div 4 = 3 \div (\underline{\quad} + \underline{\quad})$

Hint: $\dots \dots \dots = \dots \dots \dots$

IN EACH OF THE FOLLOWING, PUT A NUMERAL IN THE BOX THAT WILL MAKE THE SENTENCE TRUE.

47. $7 + 8 = 10 + \square$

48. $\square + 3 = 3$

49. $7 - \square = 7$

50. Find the sum.

$$\begin{array}{r} 141 \\ 22 \\ +413 \\ \hline \end{array}$$

51. Find the sum.

$$\begin{array}{r} 34 \\ +58 \\ \hline \end{array}$$

52. Find the difference.

$$\begin{array}{r} 247 \\ -123 \\ \hline \end{array}$$

53. Find the difference.

$$\begin{array}{r} 52 \\ -35 \\ \hline \end{array}$$

54. Draw a set model to show the product of $4 \times 3 = \square$

55. Write the name of the product in the box.

WRITE A NUMERAL IN THE BLANKS TO MAKE THE FOLLOWING SENTENCES TRUE.

56. $2 \times 4 = \underline{\quad} + 4$

57. $6 + 6 + 6 = \underline{\quad} \times 6$

Put a "1" in the circle.

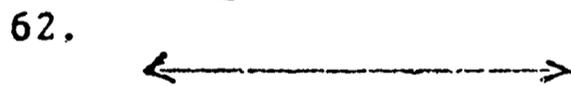
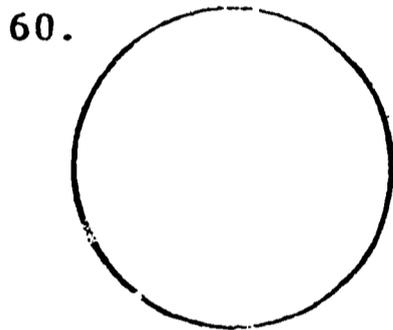
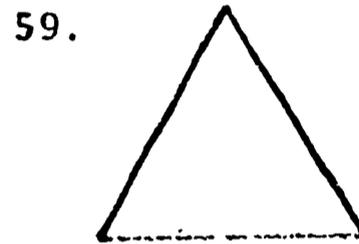
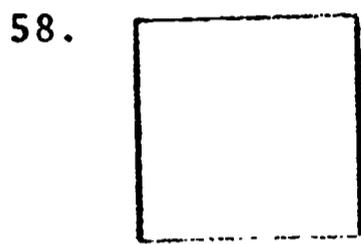
Put a "2" in the rectangle.

Put a "3" in the square.

Put a "4" in the triangle.

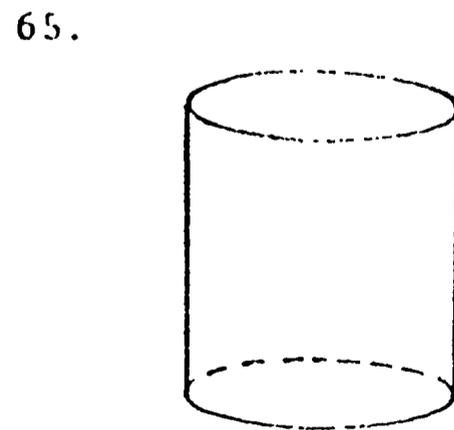
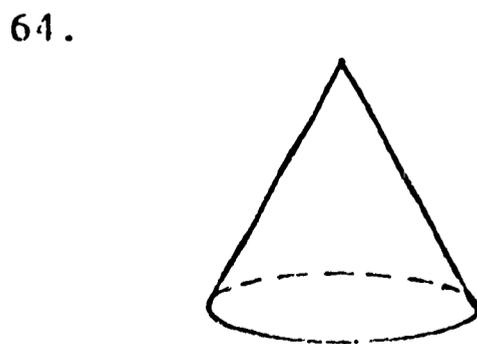
Put a "5" on the line segment.

Put a "6" on the line.

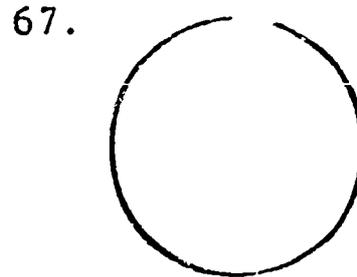
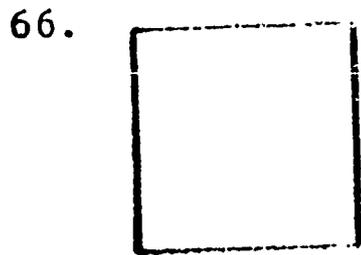


Put an "X" on the cone.

Draw a ring around the cylinder.



Put an "X" on the plane figure which is not closed.
 Put an "I" inside the closed figure.



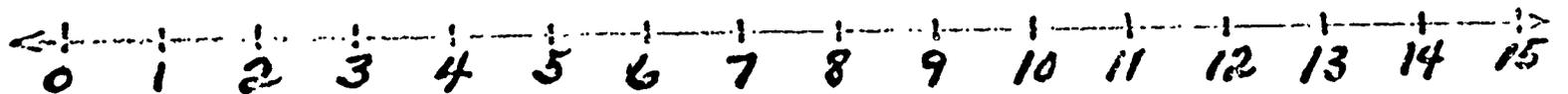
68. Draw rings around subsets of three X's.

X X X X X
 X X X X X
 X X X X X

Any set of rings that encircle 3 X's each is correct.

69. Using the above example, complete this sentence: $15 \div 3 = \square$

70. Above this number line show that $3 \times 4 = 12$.



71. Below the number line show that $4 \times 3 = 12$.

IN EACH OF THE FOLLOWING, PUT A NUMERAL IN THE BOX THAT WILL MAKE THE SENTENCE TRUE.

72. $\square \times 6 = 6$

73. $7 \times \square = 7$

74. $0 \times 8 = \square$

75. Draw a line segment 2 inches long above this ruler.



76. Draw a square.

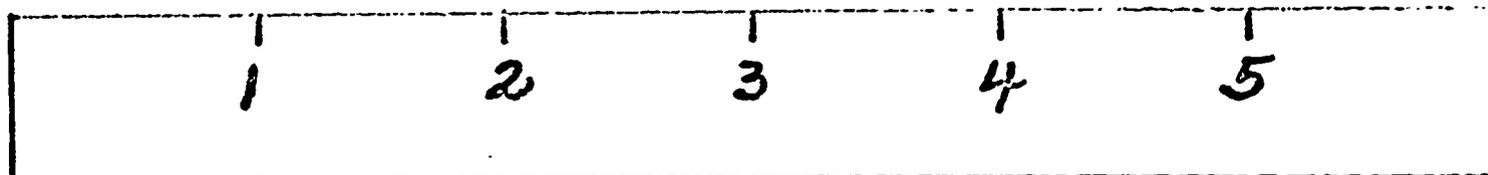
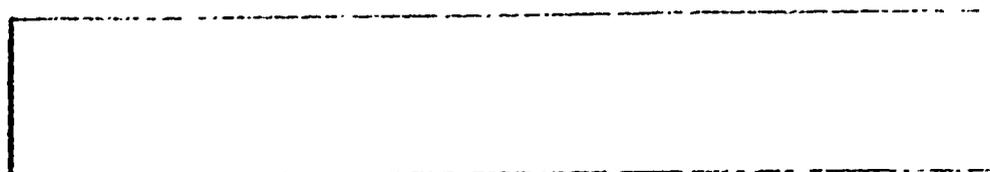
77. Draw a rectangle.

78. Draw a circle.

79. Draw a triangle.

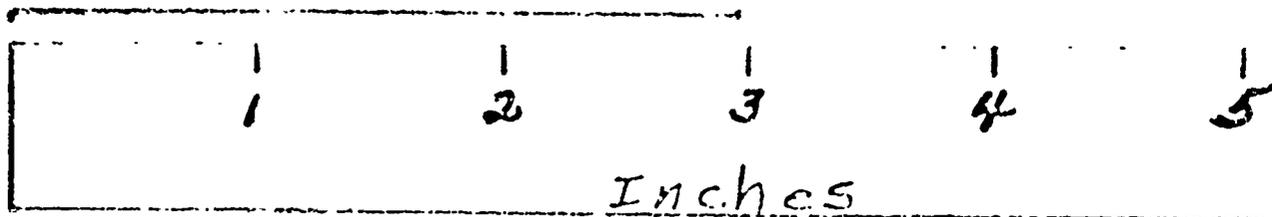
80. Draw a number line showing the numerals 0 through 10.

81.



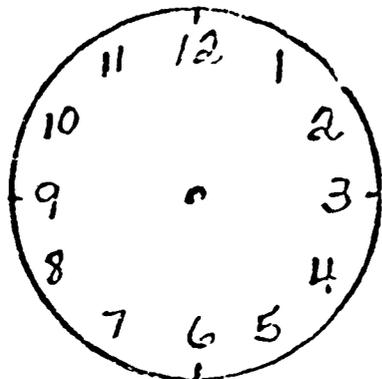
Here is a rectangle and a ruler. The length of this rectangle is 4 (inches, feet, yard). Underline the correct choice.

82.



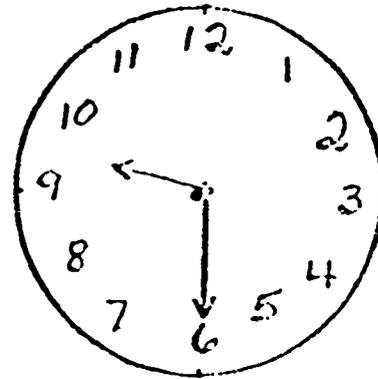
Here is a line segment and a ruler. The length of this line segment is about _____ inches.

83. Draw the hands to show the time that is written under the clock.

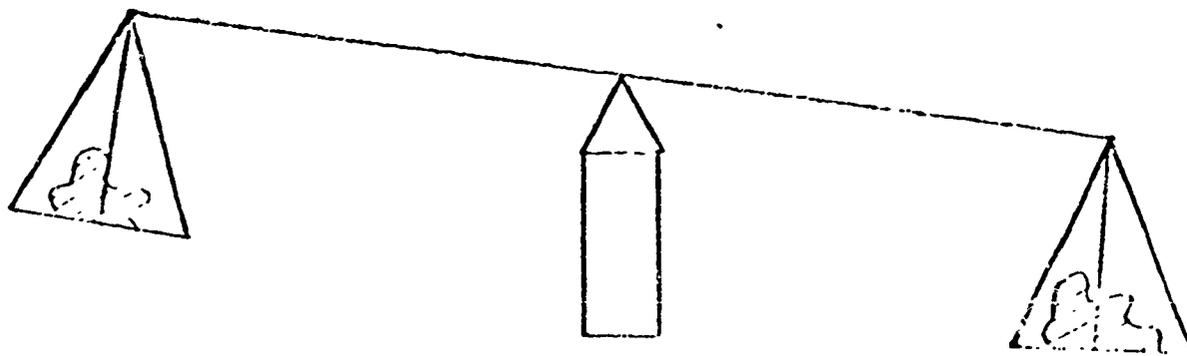


5:00

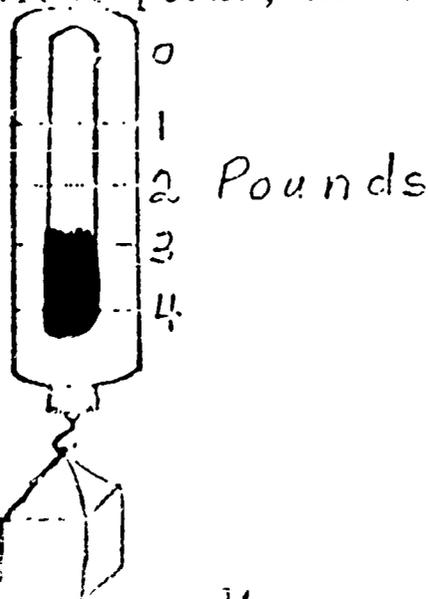
84. Look at the picture of the clock. What time is it?



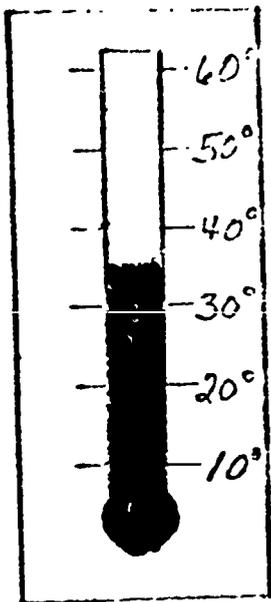
85. Put an "X" on the heaviest object on the balance scale.



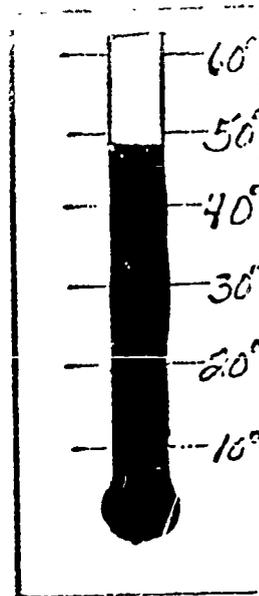
86. To the nearest pound, how much does the block weigh?



87.



Monday



Tuesday

Was it warmer on Monday or Tuesday? Draw a ring around the correct answer.

MATCH THE NAME OF EACH COIN WITH ITS VALUE. DRAW A LINE TO CONNECT EACH PAIR.

88. Penny 10¢

89. Dime 25¢

90. Nickel 1¢

91. Quarter 50¢

92. Half dollar 5¢

93. quarter nickel penny penny dime

The total value of the above coins is _____.

94. I have 156 cents. Write this amount as dollars and cents.

95. 1 half dollar = _____ dimes.

96. 1 dime = _____ pennies.

97. 1 dime = _____ nickels.

98. 60 minutes = _____ hour.

MATHEMATICS CONCEPTS TEST

Basic Test: Level Two

Part II - Timed

Name _____ Last _____ First _____ Middle _____

Teacher _____ School _____ Grade _____

Date _____ Test Score -- Part II _____

DIRECTIONS TO STUDENTS

1. Write your name and other information on the top of this sheet.
2. Write your answers on the test booklet.

Place test paper on table in front of students. Ask. At your signal they turn the paper over and start working. Allow a 4 min time at exactly 4 minutes.

Time limit: 4 minutes

ADDITION TEST

$$\begin{array}{r} 5 \\ +4 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ +2 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ +6 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ +5 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ +7 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ +5 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ +3 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ +2 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ +1 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ +2 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ +5 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ +4 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ +6 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ +0 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ +8 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ +9 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ +4 \\ \hline \end{array} \quad \begin{array}{r} 0 \\ +6 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ +4 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ +6 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ +3 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ +6 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ +9 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ +8 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ +7 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ +3 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ +4 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ +5 \\ \hline \end{array} \quad \begin{array}{r} 1 \\ +4 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ +6 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ +7 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ +9 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ +7 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ +2 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ +9 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ +2 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ +3 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ +8 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ +2 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ +8 \\ \hline \end{array}$$

Use the same procedure as on the previous page.

Time limit: 4 minutes

SUBTRACTION TEST

$$\begin{array}{r} 14 \\ -9 \\ \hline \end{array} \quad \begin{array}{r} 12 \\ -7 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ -4 \\ \hline \end{array} \quad \begin{array}{r} 13 \\ -8 \\ \hline \end{array} \quad \begin{array}{r} 11 \\ -6 \\ \hline \end{array} \quad \begin{array}{r} 12 \\ -3 \\ \hline \end{array} \quad \begin{array}{r} 18 \\ -9 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ -4 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \\ -9 \\ \hline \end{array} \quad \begin{array}{r} 15 \\ -7 \\ \hline \end{array} \quad \begin{array}{r} 10 \\ -5 \\ \hline \end{array} \quad \begin{array}{r} 0 \\ -0 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ -1 \\ \hline \end{array} \quad \begin{array}{r} 13 \\ -6 \\ \hline \end{array} \quad \begin{array}{r} 17 \\ -9 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ -3 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ -7 \\ \hline \end{array} \quad \begin{array}{r} 11 \\ -8 \\ \hline \end{array} \quad \begin{array}{r} 15 \\ -9 \\ \hline \end{array} \quad \begin{array}{r} 13 \\ -4 \\ \hline \end{array} \quad \begin{array}{r} 10 \\ -7 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ -3 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ -2 \\ \hline \end{array} \quad \begin{array}{r} 14 \\ -7 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ -3 \\ \hline \end{array} \quad \begin{array}{r} 12 \\ -5 \\ \hline \end{array} \quad \begin{array}{r} 10 \\ -9 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ -5 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ -2 \\ \hline \end{array} \quad \begin{array}{r} 17 \\ -8 \\ \hline \end{array} \quad \begin{array}{r} 14 \\ -5 \\ \hline \end{array} \quad \begin{array}{r} 11 \\ -4 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ -1 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ -2 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ -5 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ -3 \\ \hline \end{array} \quad \begin{array}{r} 16 \\ -8 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ -6 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ -3 \\ \hline \end{array} \quad \begin{array}{r} 11 \\ -2 \\ \hline \end{array}$$

ANSWER KEY

PART I	98 items	13 pages
TIMED TESTS	80 items	2 pages
TOTAL	<u>178</u> items	

MATHEMATICS CONCEPTS TEST

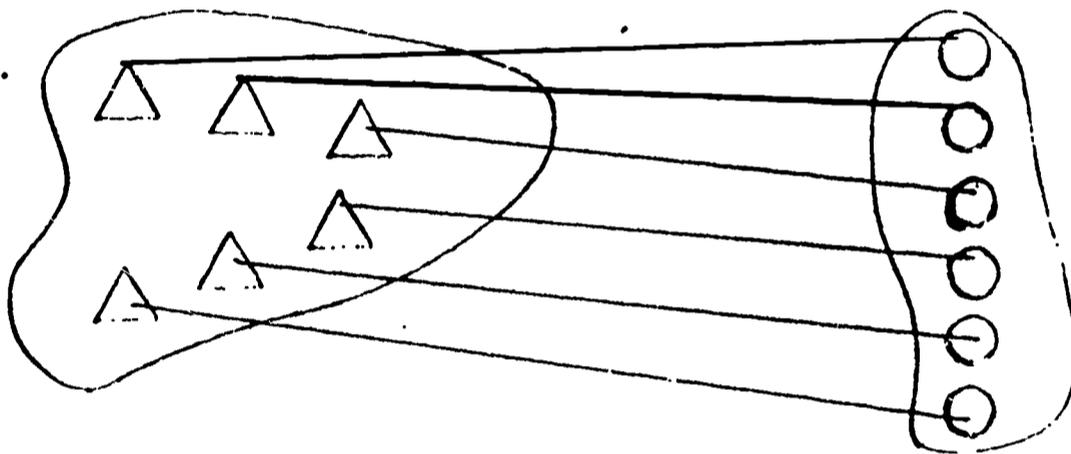
Basic Test: Level Two

1. Look at this set. Put an "X" on the object which is not a member of the set of letters of the alphabet.

{A, C, ~~A~~, F, W}

2. Here are two sets.

any 1-to-1 matching is correct.



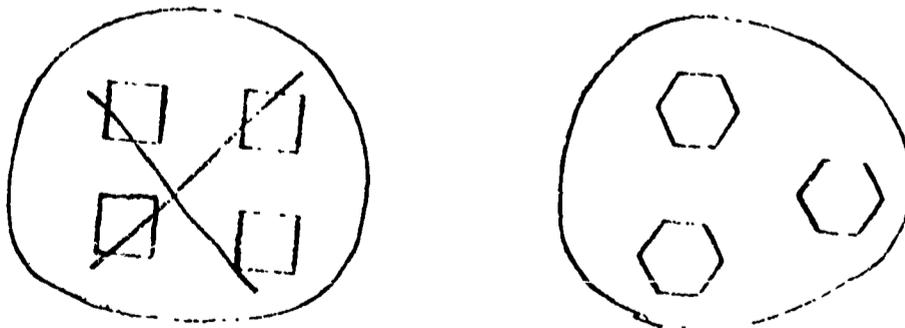
Are these sets equivalent? Draw a ring around the correct answer.

YES

NO

3. Match by one-to-one correspondence to check your answer.

4. Here are two sets.



Are these sets equivalent? Draw a ring around the correct answer.

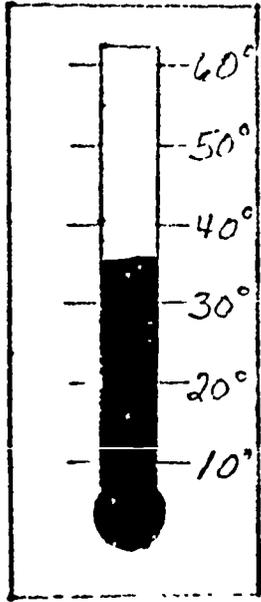
YES

NO

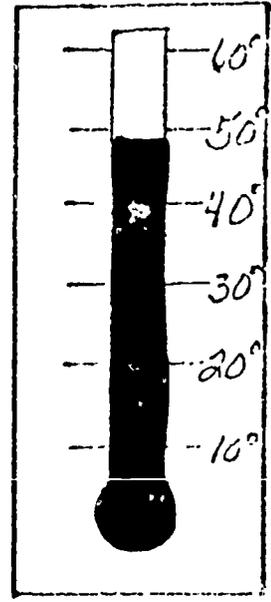
If you said no, put an "X" on the set that has more members.

If either answer is incorrect, mark the whole item as incorrect.

87.



Monday



Tuesday

Any "Tue" is correct

Was it warmer on Monday or Tuesday? Draw a ring around the correct answer.

MATCH THE NAME OF EACH COIN WITH ITS VALUE. DRAW A LINE TO CONNECT EACH PAIR.

- 88. Penny 10¢
- 89. Dime 25¢
- 90. Nickel 1¢
- 91. Quarter 50¢
- 92. Half dollar 5¢

93. quarter nickel penny penny dime

The total value of the above coins is 42¢
or \$.42

The ¢ or \$ symbol is necessary.

5. Read these sentences.

_____ A is the set of live boys in this room.

X B is the set of wild foxes in this room

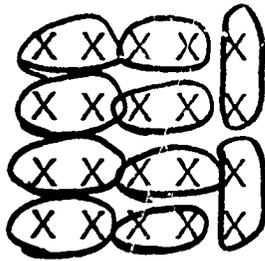
_____ C is the set of girls in this room.

Put an "X" before the one which describes the empty set.

6. From this set, form a subset of the names of girls beginning with the letter S.

Set = {Sue, Jane, Mary, Sally}
Subset = {Sue, Sally or Sally, Sue}

7. By drawing rings around sets of 2, count the number of x's in this set.



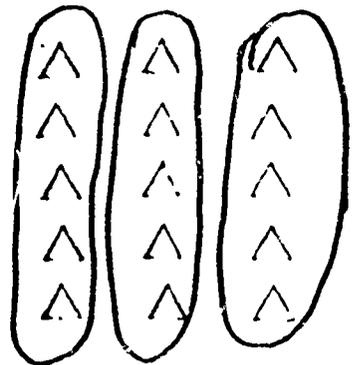
any set of rings that encircle two x's each is correct.

8. How many sets of 2 are there? 10

9. How many X's are there in all? 20

10. By drawings rings around sets of 5, count the number of Δ 's in this set.

See note for #7 above.



11. How many sets of 5 are there? 3

12. How many Δ 's are there in all? 15

of

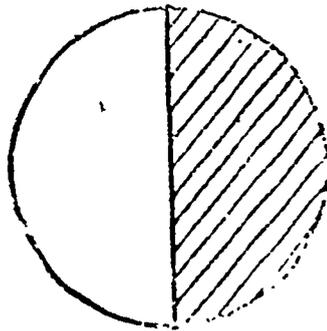
Write $<$, $>$ or $=$ in each \bigcirc to make these sentences true.

13. $15 + 12 \bigcirc 30$

14. $23 \bigcirc 20 + 3$

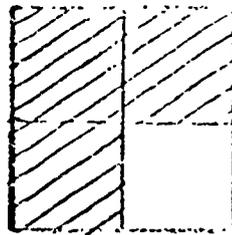
15. $17 + 5 \bigcirc 20$

16. Write the fraction that names the part of the circle that is shaded.



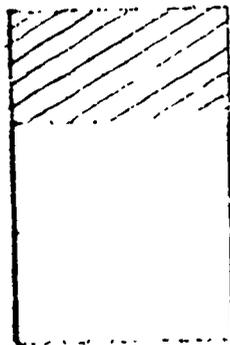
$\frac{1}{2}$

17. Write the fraction that names the part of the square that is shaded.



$\frac{3}{4}$

18. Write the fraction that names the part of the rectangle that is shaded.



$\frac{1}{3}$

19. Look at the word "MATHEMATICS"

What is the tenth letter? C

20. Put an "X" on the numeral which is not another name for 135.

- a) $100 + 30 + 5$
- b) $100 + 20 + 15$
- c) $100 + 5 + 30$
- d) ~~$100 + 10 + 5$~~

21. Write three hundred twenty-four in this box. (a numeral)

324

MATCH THE NUMERAL WITH THE CORRECT WORD. DRAW A LINE SEGMENT TO CONNECT EACH PAIR.

- | | |
|---------------|----|
| 22. fourteen | 17 |
| 23. nine | 12 |
| 24. twenty | 14 |
| 25. twelve | 20 |
| 26. seventeen | 9 |

27. In 569, what digit is in the tens' place? 6

28. EXAMPLE: $853 = 800 + 50 + 3$

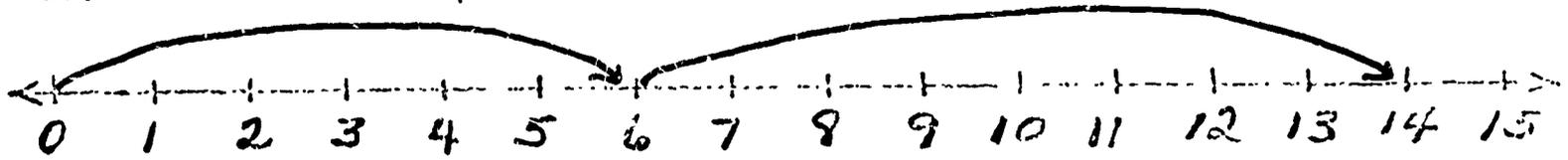
Write the expanded numeral for

$749 =$ $700 + 40 + 9$

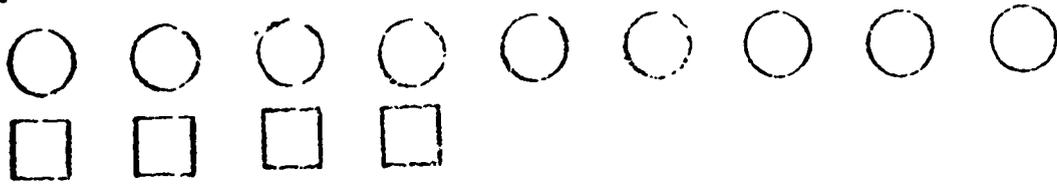
The number line must be used whenever necessary. The jumps maybe shown above or below the line.

29. Complete the following sentence. $6 + 8 = \boxed{14}$

30. Show the above problem on this number line.



31. Write the number sentence that tells the difference between the number of \bigcirc 's and the number of \square 's.



$9 - 4 = 5$ (The sentence must be complete.)

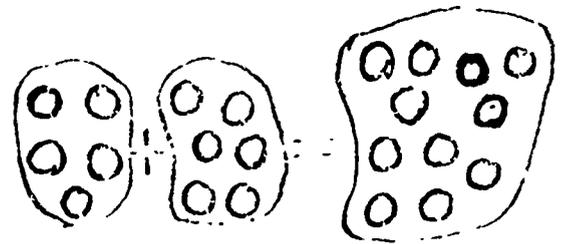
WRITE TWO ADDITION SENTENCES AND TWO SUBTRACTION SENTENCES RELATED TO THIS MODEL.

32. $5 + 6 = 11$

33. $6 + 5 = 11$

34. $11 - 6 = 5$

35. $11 - 5 = 6$



Put $+$ or $-$ in the circle to make these sentences true.

36. $14 \text{ } \ominus \text{ } 6 = 8$

37. $9 \text{ } \ominus \text{ } 3 = 6$

38. $9 \text{ } \oplus \text{ } 3 = 12$

WRITE A NUMERAL IN THE BOX TO MAKE THE FOLLOWING STATEMENTS TRUE.

39.
$$\begin{array}{r} 17 \\ - \boxed{9} \\ \hline 8 \end{array}$$

40.
$$\begin{array}{r} 10 \\ + \boxed{8} \\ \hline 18 \end{array}$$

41. $7 + \boxed{8} = 15$

42. $\boxed{10} - 6 = 4$

43. $9 + 5 = \boxed{14}$

44. $12 - 7 = \boxed{5}$

45. Complete this sentence.

$$2 + 6 = 6 + \underline{2}$$

46. $(3 + 2) + 4 = 3 + (2 + \underline{4})$

Hint:

IN EACH OF THE FOLLOWING, PUT A NUMERAL IN THE BOX THAT WILL MAKE THE SENTENCE TRUE.

47. $7 + 8 = 10 + \boxed{5}$

48. $\boxed{0} + 3 = 3$

49. $7 - \boxed{0} = 7$

50. Find the sum.

$$\begin{array}{r} 141 \\ 22 \\ +413 \\ \hline 576 \end{array}$$

51. Find the sum.

$$\begin{array}{r} 34 \\ +58 \\ \hline 92 \end{array}$$

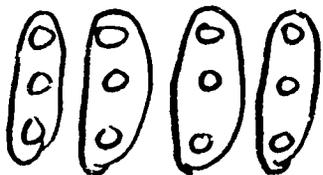
52. Find the difference.

$$\begin{array}{r} 247 \\ -123 \\ \hline 124 \end{array}$$

53. Find the difference.

$$\begin{array}{r} 52 \\ -35 \\ \hline 17 \end{array}$$

54. Draw a set model to show the product of $4 \times 3 = \boxed{12}$



any model showing four sets of 3 is correct - with or without the rings.

55. Write the name of the product in the box.

WRITE A NUMERAL IN THE BLANKS TO MAKE THE FOLLOWING SENTENCES TRUE.

56. $2 \times 4 = \underline{4} + 4$

57. $6 + 6 + 6 = \underline{3} \times 6$

Put a "1" in the circle.

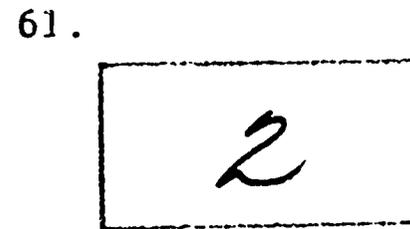
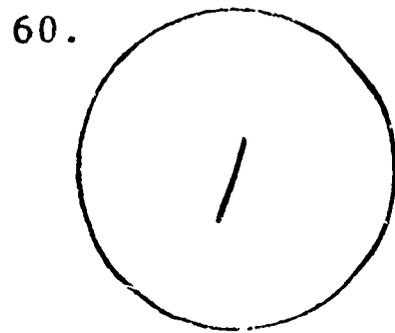
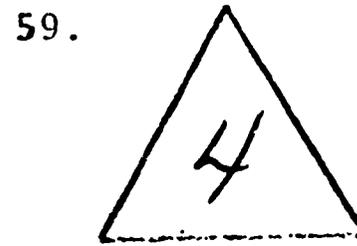
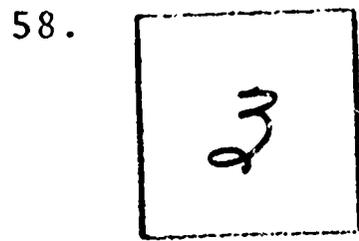
Put a "2" in the rectangle.

Put a "3" in the square.

Put a "4" in the triangle.

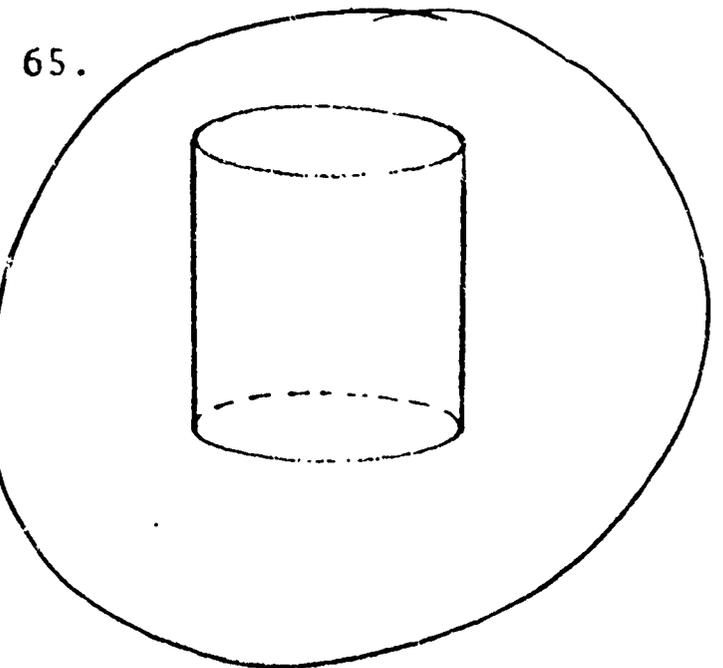
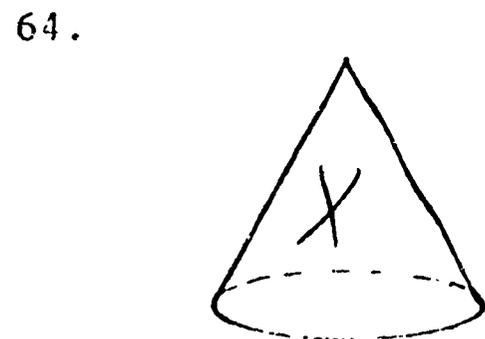
Put a "5" on the line segment.

Put a "6" on the line.



Put an "X" on the cone.

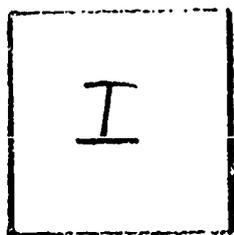
Draw a ring around the cylinder.



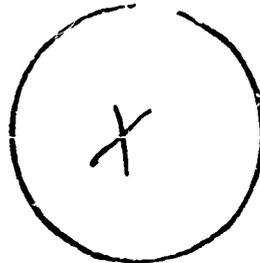
Put an "X" on the plane figure which is not closed.

Put an "I" inside the closed figure.

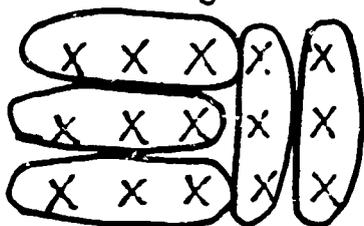
66.



67.



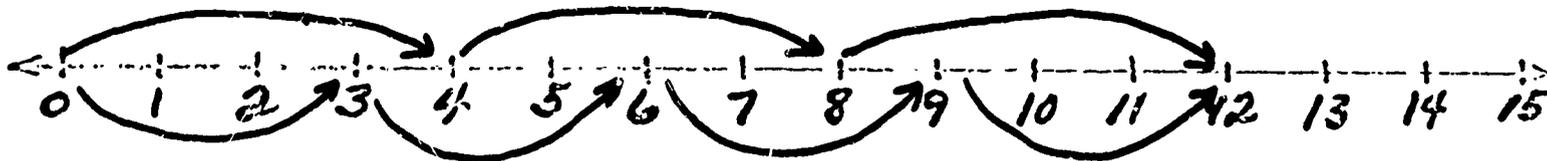
68. Draw rings around subsets of three X's.



any set of rings that encircle 3 X's each is correct.

69. Using the above example, complete this sentence: $15 \div 3 = \boxed{5}$

70. Above this number line show that $3 \times 4 = 12$.



71. Below the number line show that $4 \times 3 = 12$.

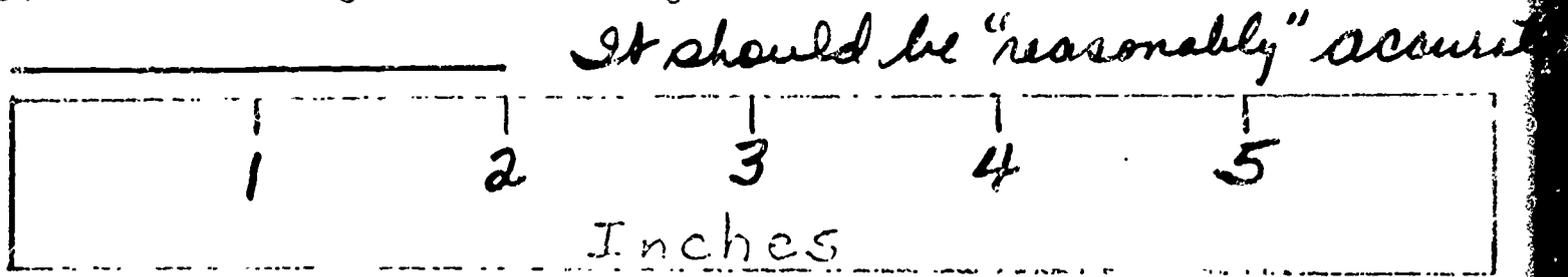
IN EACH OF THE FOLLOWING, PUT A NUMERAL IN THE BOX THAT WILL MAKE THE SENTENCE TRUE.

72. $\boxed{1} \times 6 = 6$

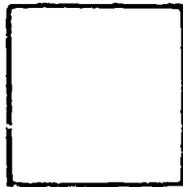
73. $7 \times \boxed{1} = 7$

74. $0 \times 8 = \boxed{0}$

75. Draw a line segment 2 inches long above this ruler.



76. Draw a square.

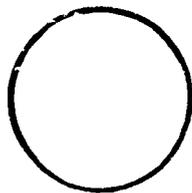


77. Draw a rectangle.

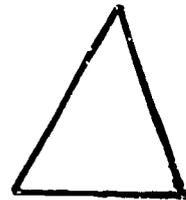


any "reasonable" recognizable figure is correct for 76-79.

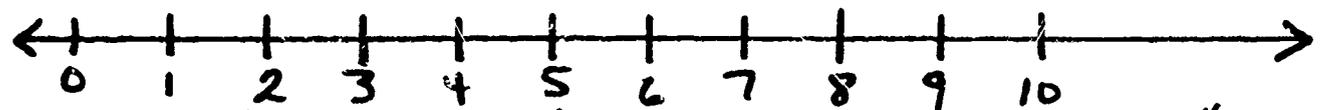
78. Draw a circle.



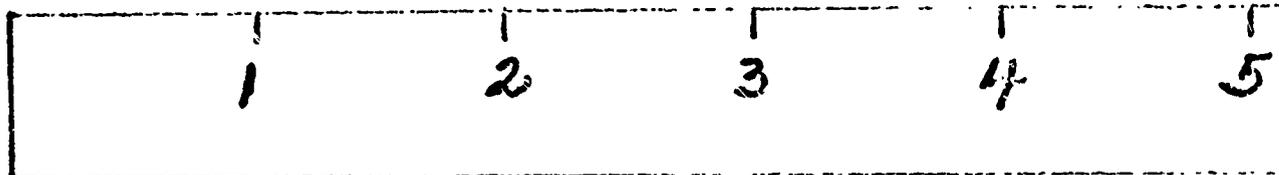
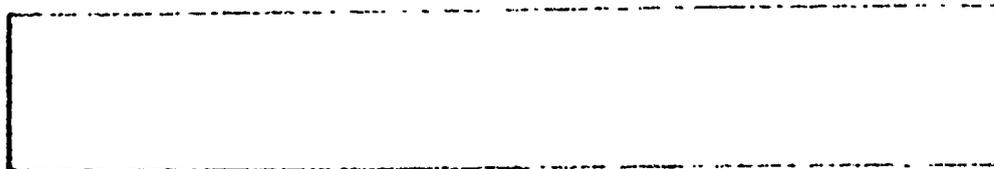
79. Draw a triangle.



80. Draw a number line showing the numerals 0 through 10.

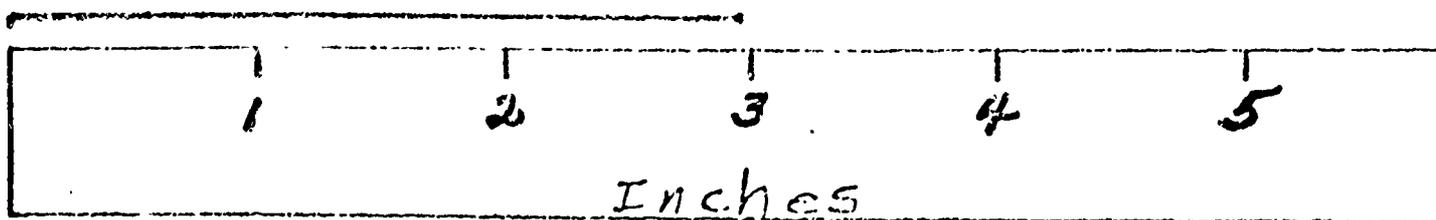


81. The arrowheads must be shown and spaces "reasonable equal in length"



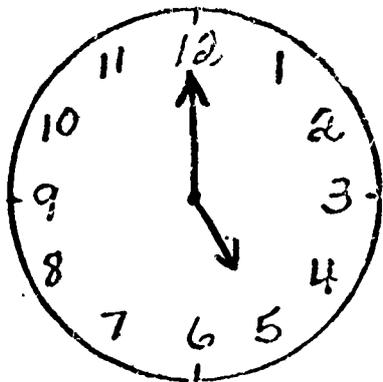
Here is a rectangle and a ruler. The length of this rectangle is 4 (inches, feet, yard). Underline the correct choice.

82:



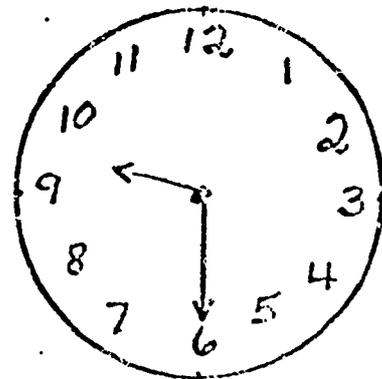
Here is a line segment and a ruler. The length of this line segment is about 3 inches.

83. Draw the hands to show the time that is written under the clock.



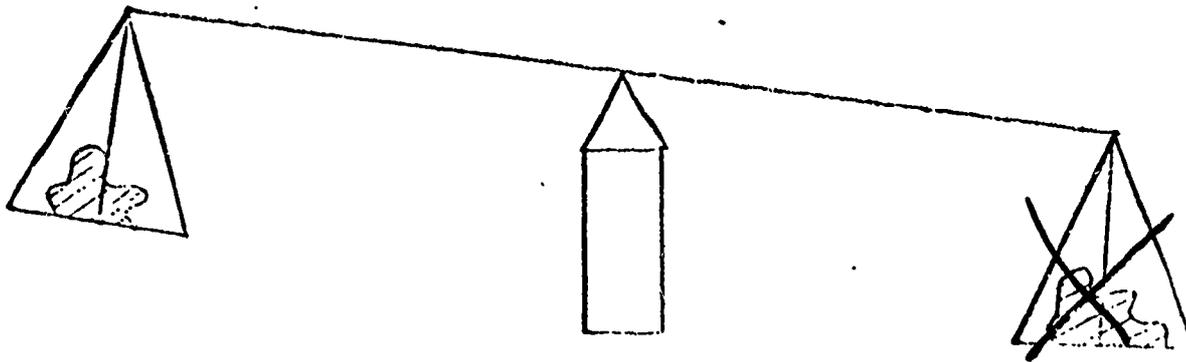
5:00

84. Look at the picture of the clock. What time is it?

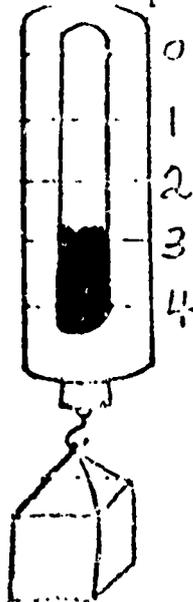


9:30

85. Put an "X" on the heaviest object on the balance scale.



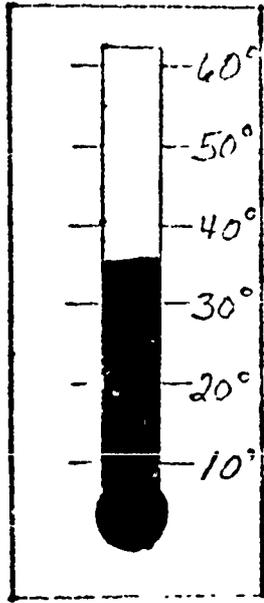
86. To the nearest pound, how much does the block weigh?



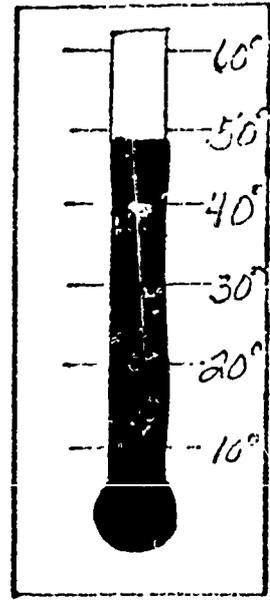
Pounds

3 pounds

87.



Monday



Tuesday

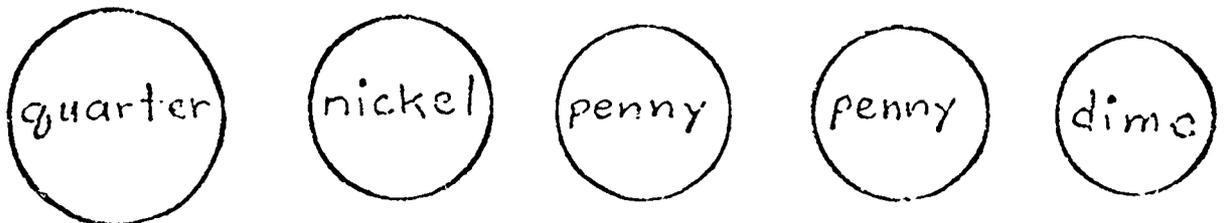
Any "Tue" is correct

Was it warmer on Monday or Tuesday? Draw a ring around the correct answer.

MATCH THE NAME OF EACH COIN WITH ITS VALUE. DRAW A LINE TO CONNECT EACH PAIR.

- 88. Penny 10¢
- 89. Dime 25¢
- 90. Nickel 1¢
- 91. Quarter 50¢
- 92. Half dollar 5¢

93.



The total value of the above coins is 42¢
or \$.42

The ¢ or \$ symbol is necessary.

94. I have 156 cents. Write this amount as dollars and cents.

\$1.56 or One dollar and 56 cents

95. 1 half dollar = 5 dimes.

96. 1 dime = 10 pennies.

97. 1 dime = 2 nickels.

98. 60 minutes = 1 hour.

Time limit: 4 minutes

ADDITION TEST

$$\begin{array}{r} 5 \\ +4 \\ \hline 9 \end{array} \quad \begin{array}{r} 9 \\ +2 \\ \hline 11 \end{array} \quad \begin{array}{r} 7 \\ +6 \\ \hline 13 \end{array} \quad \begin{array}{r} 6 \\ +5 \\ \hline 11 \end{array} \quad \begin{array}{r} 8 \\ +7 \\ \hline 15 \end{array} \quad \begin{array}{r} 7 \\ +5 \\ \hline 12 \end{array} \quad \begin{array}{r} 3 \\ +3 \\ \hline 6 \end{array} \quad \begin{array}{r} 5 \\ +2 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 7 \\ +1 \\ \hline 8 \end{array} \quad \begin{array}{r} 8 \\ +2 \\ \hline 10 \end{array} \quad \begin{array}{r} 5 \\ +5 \\ \hline 10 \end{array} \quad \begin{array}{r} 9 \\ +4 \\ \hline 13 \end{array} \quad \begin{array}{r} 8 \\ +6 \\ \hline 14 \end{array} \quad \begin{array}{r} 7 \\ +0 \\ \hline 7 \end{array} \quad \begin{array}{r} 4 \\ +8 \\ \hline 12 \end{array} \quad \begin{array}{r} 6 \\ +9 \\ \hline 15 \end{array}$$

$$\begin{array}{r} 7 \\ +4 \\ \hline 11 \end{array} \quad \begin{array}{r} 0 \\ +6 \\ \hline 6 \end{array} \quad \begin{array}{r} 2 \\ +4 \\ \hline 6 \end{array} \quad \begin{array}{r} 6 \\ +6 \\ \hline 12 \end{array} \quad \begin{array}{r} 8 \\ +3 \\ \hline 11 \end{array} \quad \begin{array}{r} 4 \\ +6 \\ \hline 10 \end{array} \quad \begin{array}{r} 9 \\ +9 \\ \hline 18 \end{array} \quad \begin{array}{r} 8 \\ +8 \\ \hline 16 \end{array}$$

$$\begin{array}{r} 5 \\ +7 \\ \hline 12 \end{array} \quad \begin{array}{r} 6 \\ +3 \\ \hline 9 \end{array} \quad \begin{array}{r} 4 \\ +4 \\ \hline 8 \end{array} \quad \begin{array}{r} 3 \\ +5 \\ \hline 8 \end{array} \quad \begin{array}{r} 1 \\ +4 \\ \hline 5 \end{array} \quad \begin{array}{r} 9 \\ +6 \\ \hline 15 \end{array} \quad \begin{array}{r} 7 \\ +7 \\ \hline 14 \end{array} \quad \begin{array}{r} 5 \\ +9 \\ \hline 14 \end{array}$$

$$\begin{array}{r} 3 \\ +7 \\ \hline 10 \end{array} \quad \begin{array}{r} 2 \\ +2 \\ \hline 4 \end{array} \quad \begin{array}{r} 3 \\ +9 \\ \hline 12 \end{array} \quad \begin{array}{r} 7 \\ +2 \\ \hline 9 \end{array} \quad \begin{array}{r} 4 \\ +3 \\ \hline 7 \end{array} \quad \begin{array}{r} 6 \\ +8 \\ \hline 14 \end{array} \quad \begin{array}{r} 3 \\ +2 \\ \hline 5 \end{array} \quad \begin{array}{r} 2 \\ +8 \\ \hline 10 \end{array}$$

Time limit: 4 minutes

SUBTRACTION TEST

$$\begin{array}{r} 14 \\ -9 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 12 \\ -7 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 6 \\ -4 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 13 \\ -8 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 11 \\ -6 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 12 \\ -3 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 18 \\ -9 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 8 \\ -4 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 12 \\ -9 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 15 \\ -7 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 10 \\ -5 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 0 \\ -0 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 9 \\ -1 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 13 \\ -6 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 17 \\ -9 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 6 \\ -3 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 9 \\ -7 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 11 \\ -8 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 15 \\ -9 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 13 \\ -4 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 10 \\ -7 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 9 \\ -3 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 3 \\ -2 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 14 \\ -7 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 10 \\ -3 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 12 \\ -5 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 10 \\ -9 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 7 \\ -5 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 8 \\ -2 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 17 \\ -8 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 14 \\ -5 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 11 \\ -4 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 10 \\ -1 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 4 \\ -2 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 9 \\ -5 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 7 \\ -3 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 16 \\ -8 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 8 \\ -6 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 5 \\ -3 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 11 \\ -2 \\ \hline 9 \end{array}$$

MATHEMATICS CONCEPTS TEST

Basic Test: Level Three

Answer Key and Teachers' Guide

MATHEMATICS CONCEPTS TEST

Basic Test: Level Three
(Grade Three)

ANSWER KEY AND TEACHERS' GUIDE

Description of Test

Items for this mathematics test have been written to assess behavioral objectives proposed by the Mathematics Curriculum Guide, K-6. Multiple choice test items are used where possible. Other behavioral objectives are tested by requiring the student to construct geometric figures. Immediate recall of basic facts is tested by four timed tests. A cross reference of objectives from the Curriculum Guide and items in the test is included with the Teachers' Guide.

Multiple Choice Test Items

Part I of the test consists of items which can be machine scored directly from the IBM 1230 answer sheet. Students mark answers on answer sheets. The test administrator should inform all students to mark each response carefully with a No. 2 black lead pencil. Answer sheets marked with ink or crayon cannot be machine scored. There should be no extra marks of any type on the answer sheet. Teachers may want to hand score certain answer sheets. In the process of hand scoring, no mark should be placed on the answer sheet until machine scoring has been completed.

Computer Analysis

Computer analysis of test results will develop the following information:

1. Number of items correct, missed and unanswered for each student.
2. Percentage score for each student.
3. Frequency distribution of percentage scores.
4. Mean score.
5. Standard deviation.
6. Item analysis -- biserial correlation.

Identification of Student Answer Sheets

Student name and other information on the upper left hand side of the answer sheet is used for a quick visual identification. However, the computer does not use this data. In the upper right hand section space is provided to code a student identification number. Data will be processed by the computer in accordance with this number. The recommended procedure for assigning student identification numbers is as follows:

1. Assign each student a different six (6) digit number. If desired the first digits may be zeros, i. e. 000001, 000002, etc. The test results will be recorded numerically by this student number.
2. Record the number vertically in the column of boxes, one digit to a box, starting at the top.
3. Darken in the corresponding digit in the rows to the right of the boxes, one digit to a box.
4. The teacher should keep a record of the number she has assigned to each student so that she can identify the student by that number when the tests are returned.
5. Two answer sheets are required for this test. Care should be taken that each student uses the same number for both answer sheets.

Teacher Scored Subtests

Parts II and III of the test consist of items which must be hand scored. After hand scoring an answer sheet should be prepared for each student to record the responses. Mark "a" for a correct response and "b" for an incorrect response. For unanswered questions, place no mark on the answer sheet.

Part II consists of eight items. Record the responses for this subtest on the first eight rows of the answer sheet. Part III consists of ninety-six items. Record the responses in rows 9 - 104 for this subtest.

Time Limits For Tests

This test is designed to be a mastery test. Consequently, time limits have been established which will permit over ninety percent of the students to attempt every item on the test. Students should be told that there is no penalty for guessing. It is better to attempt a difficult item than to pass it over.

Two sittings are recommended for Part I. The test however, should be administered in one day. This will preclude students checking on difficult items and perhaps changing their answers on the answer sheet.

- | | | |
|----|----------|------------|
| 1. | Part I | 80 Minutes |
| 2. | Part II | 20 Minutes |
| 3. | Part III | 8 Minutes |

Directions To Students

The student is expected to read the test and make a response either on the answer sheet or in the test booklet. No marks should be made in the test booklet for Part I. For Parts II and III the answer is written in the booklet. Unknown mathematical terms or processes should not be explained to students before or during the test. In Part II students may be informed that a "model" is a "picture." Construction should be done with a straight edge.

Supplies Needed For Testing

1. For Part I each student should have two No. 2 pencils, scratch paper, one test and one answer sheet.
2. For Part II students will need a compass, a straight edge, pencils and one test.
3. For Part III students will need pencils and one copy of the test.

Norms

District norms will be made available so that student achievement in different schools can be compared. Teachers should be more concerned with the item analysis and cross reference of objectives and test items. A study of test results for any class will provide insights concerning areas where more instruction is needed both for individuals and groups of students.

BASIC TEST: LEVEL THREE

A CROSS REFERENCE OF OBJECTIVES FROM THE CURRICULUM GUIDE AND ITEMS
IN THE MATHEMATICS COVERAGE TEST

CODE: "N" means number strand; "Nu" means numeration strand;
"O" means operations strand; "G" means geometry strand;
and, "M" means measurement strand.

An example: M-4 means the fourth objective under measurement.

OBJECTIVE # ITEM #

N-1	1
N-2&4	2
N-3	3
N-5	4
N-6	5
N-7	6
N-8	7
N-9	8
N-10	9
N-11	10
N-13	11
N-14	12

Nu-1	13
Nu-2	14
Nu-3	15
Nu-4	16
Nu-5	17
Nu-9	18

O-3	19
O-4	20
O-6	21
O-8	22
O-7	23
O-9	24
O-10	25, 26
O-11	27, 28
O-14	29
O-12	30
O-23	31
O-22&24	32
O-25	33
O-22&26	34
O-27	35

OBJECTIVE # ITEM #

O-30	36
O-31	37, 38
O-32	39
O-33	40

G-1	41
G-5	42
G-6	43
G-2	44-54
G-9	49
G-3	55-58

M-1	59
M-2	60
M-3	61
M-4	62
M-5	63
M-6	64
M-7	65
M-8	66
M-9	67
M-10	68
M-11	69
M-12	70

N-12	71
------	----

Nu-6	72
Nu-7	73
Nu-8	74

O-1	75
O-2	76
O-13&21	77
O-15&17	78
O-16&17	79
O-18	80
O-19	81
O-28	82
O-29	83

PART II

OBJECTIVE # ITEM #

G-7	1-3
G-8	4
G-4	5
G-8	6
G-7	7
G-10	8

Addition Test 0-3
Subtraction Test 0-3
Multiplication Test 0-11
Division Test 0-11

BLACKEN APPROPRIATE DIGIT HERE

Johnson LARRY J
Mrs. R. Roberts
LAURA Dearing 215
Math 1-6-69
Level I Part 4

0	-								
5									
1	-								
7									
6									
2	-								

INSTRUCTIONS Please Read Carefully

- 1. Fill in completely any answer you choose
- 2. Do not write in margins
- 3. Use blue or green pencil
- 4. Make marks clearly and legibly

Sample

SECTION I

MATHEMATICS CONCEPTS TESTS

Basic Test: Level Three

Answer Key

Part I

Part I. NUMBER AND NUMERATION

1. The set of \square 's from this collection $\square \triangle \bigcirc \bigcirc \square \square \triangle$ has
a. 7 members b. 5 members **c. 3 members** d. 1 member

2. Which shows a pair of equivalent sets?

- a.** $\{a, b, c\}$ and $\{\text{red, white, blue}\}$
- b. $\{a, b, c\}$ and $\{\text{red, blue, green, white}\}$
- c. $\{a, b\}$ and $\{a, b, c\}$
- d. $\{s, b, c\}$ and $\{\square, \bigcirc\}$

3. One hand has how many fingers?

- a. 9 **b. 5** c. 1 d. 10

4. The set of elephants sitting in this room is

- a.** $\{\}$ b. 0 c. $\{\text{pink}\}$ d. $\{3, 4, 5\}$

5. Which of the sets below is a subset of this one?



- a. $\{\hexagon, \otimes, \bigcirc\}$
- b. $\{\bigcirc, \text{rectangle}\}$
- c.** $\{\text{rectangle}, \hexagon, \bigcirc\}$
- d. $\{\text{rectangle}, \triangle, \bigcirc, \hexagon, \bigcirc, \square\}$

6. The cardinal number of this set $\{\bigcirc, \triangle, \bigcirc, \square, \text{—}\}$ is
 a. 4 b. 3 c. 2 d. 5

7. The numerals which come before and after 710 are

a. 709, _____, 710

b. 711, _____, 712

c. 708, _____, 709

d. 709, _____, 711

8. Which group of numerals is arranged in order beginning with the smallest numeral?

a. 27, 31, 29, 30, 38

b. 31, 30, 29, 28, 27

c. 27, 28, 29, 30, 31

d. 30, 31, 27, 28, 29

9. Which statement is correct?

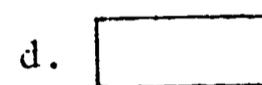
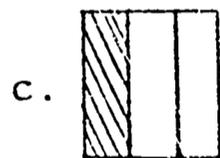
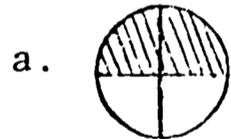
a. $4 > 2$

b. $4 < 2$

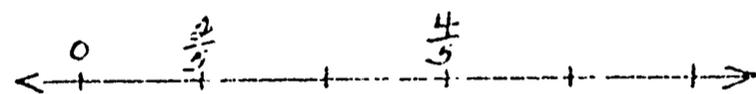
c. $4 = 2$

d. $4 \neq 2 + 2$

10. Which picture shows $\frac{1}{4}$?



11. This number line shows that



a. $\frac{2}{5} < \frac{4}{5}$

b. $\frac{2}{5} = \frac{4}{5}$

c. $\frac{2}{5} > \frac{4}{5}$

d. $\frac{2}{5} \neq \frac{2}{5}$

12. The fourth object in this row is is



13. Which is not a name for 7?

a. $5 + 2$

b. $9 - 2$

c. $2 + 2 + 3$

d. $5 - 2$

14. $236 =$

a. two hundred thirty

b. two hundred six

c. two hundred thirty-six

d. two thirty-six

15. One hundred sixty-seven =

a. 107

b. 176

c. 167

d. 617

16. In the numeral 3486, the four is in the

a. tens place

b. hundreds place

c. thousands place

d. ones place

17. In the numeral 3486, the 4 means

a. 40

b. 4,000

c. 4

d. 400

18. This model



shows

a. $\frac{3}{8}$

b. $\frac{3}{5}$

c. $\frac{3}{4}$

d. $\frac{1}{2}$

19. $\square + 27 = 42$ means

a. $42 - 27 = \square$

b. $27 - \square = 42$

c. $\square - 42 = 27$

d. $20 + 7 = 27$

20. Which of the problems below is a check of the answer to this problem?

$$\begin{array}{r} 14 \\ -5 \\ \hline 9 \end{array}$$

a. $\begin{array}{r} 5 \\ -9 \\ \hline \end{array}$

b. $\begin{array}{r} 9 \\ -5 \\ \hline \end{array}$

c. $\begin{array}{r} 14 \\ +9 \\ \hline \end{array}$

d. $\begin{array}{r} 5 \\ +9 \\ \hline \end{array}$

21. $17 + \square = 32 + 17$

a. $\square = 0$ b. $\square = 32$ c. $\square = 1$ d. $\square = 17$

22. Which grouping is easiest for adding these numbers?

a. $(25 + 2) + (5 + 8)$

b. $(25 + 5) + (2 + 8)$

c. $(5 + 2) + (25 + 8)$

d. $(2 + 5) + (25 + 8)$

23. Which grouping is easier for adding?

a. $8 + (49 + 1)$

b. $(8 + 49) + 1$

24. $14 - \square = 14 + \square$

a. $\square = 1$

b. $\square = 0$

c. $\square = 14$

d. $\square = 13$

25. $1746 + 2042 = \square$

- a. $\square = 3098$ b. $\square = 3888$ c. $\square = 3788$ d. $\square = 3089$

26. $3947 - 2605 = \square$

- a. $\square = 1242$ b. $\square = 1332$ c. $\square = 1352$ d. $\square = 1342$

27.
$$\begin{array}{r} 4867 \\ 293 \\ 94 \\ + 5101 \\ \hline \square \end{array}$$

- a. $\square = 10,364$
 b. $\square = 9,354$
 c. $\square = 91,345$
 d. $\square = 10,355$

28.
$$\begin{array}{r} 4361 \\ - 1857 \\ \hline \square \end{array}$$

- a. $\square = 3,516$
 b. $\square = 2,504$
 c. $\square = 3,514$
 d. $\square = 2,514$

29. $8 + 8 + 8 + 8 + 8 = \square \times 8$

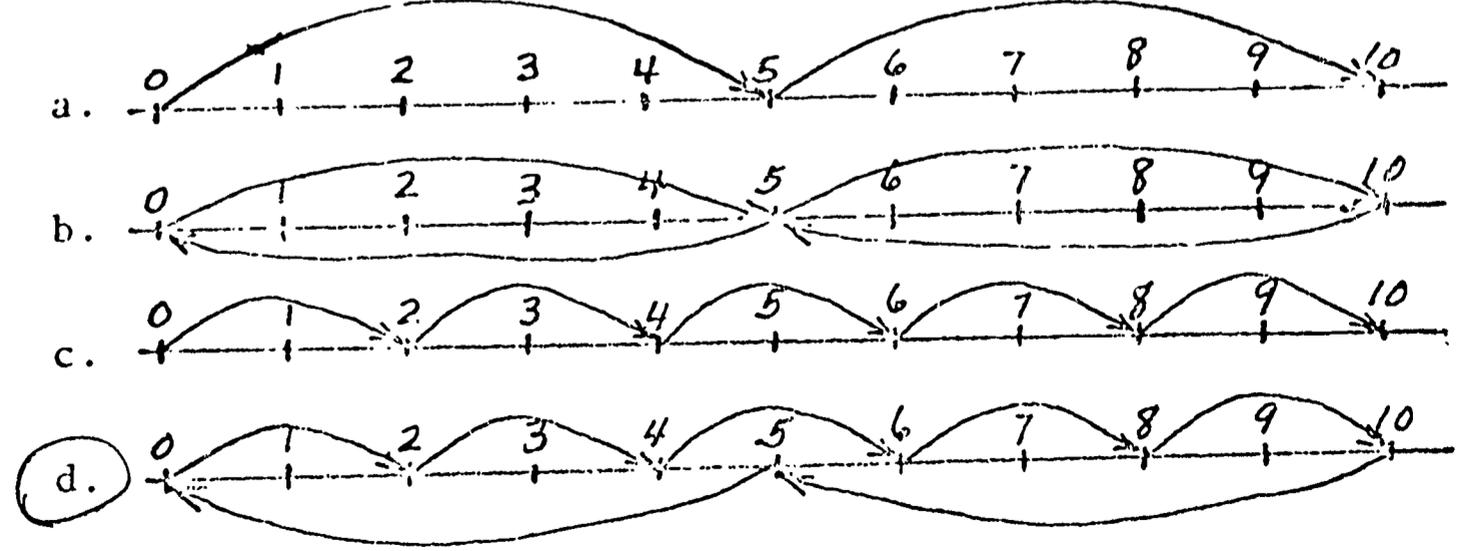
- a. $\square = 8$ b. $\square = 5$ c. $\square = 6$ d. $\square = 1$

30. What symbol placed in the \square makes this a true statement?

$14 \square 2 = 7$

- a. + b. - c. \times d. \div

31. Which number line shows that $2 \times 5 = 5 \times 2$



32. $7 \times 2 = \square \times 7$

- a. $\square = 7$ b. $\square = 0$ **c. $\square = 2$** d. $\square = 1$

33. $(5 \times 2) \times 3 = \square \times (2 \times 3)$

- a. $\square = 2$ b. $\square = 3$ c. $\square = 10$ **d. $\square = 5$**

34. $4 \times \square = 4 \div \square = 4$

- a. $\square = 0$ **b. $\square = 1$** c. $\square = 2$ d. $\square = 4$

35. $\square \times 25 = 0$

- a. $\square = 0$** b. $\square = 1$ c. $\square = 25$ d. $\square = 5$

36. If $7 \times 2 = 14$, then $7 \times 20 = \square$

- a. $\square = 14$ **b. $\square = 140$** c. $\square = 104$ d. $\square = 1400$

37.
$$\begin{array}{r} 132 \\ \times 3 \\ \hline \square \end{array}$$

- a.** $\square = 396$
b. $\square = 135$
c. $\square = 196$
d. $\square = 496$

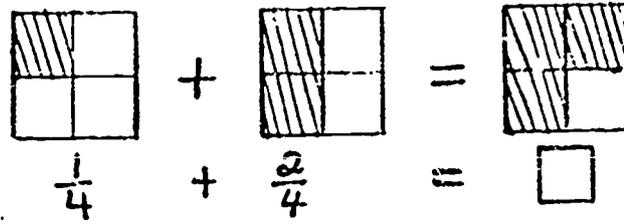
38.
$$\begin{array}{r} 132 \\ \times 7 \\ \hline \square \end{array}$$

- a. $\square = 139$
b. $\square = 72,114$
c. $\square = 828$
d. $\square = 924$

39.
$$\begin{array}{r} \square \\ 3 \overline{) 369} \end{array}$$

- a. $\square = 10,203$
b. $\square = 122$
c. $\square = 133$
d. $\square = 123$

40. These models show that



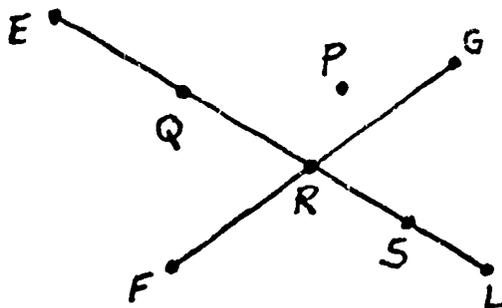
a. $\square = \frac{1}{4}$

b. $\square = \frac{2}{4}$

c. $\square = \frac{3}{4}$

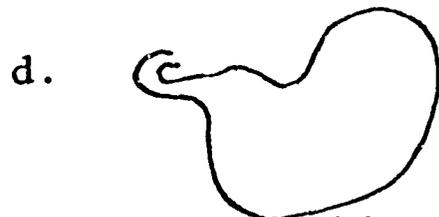
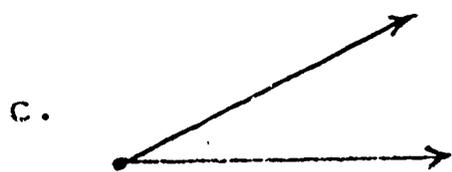
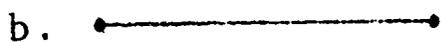
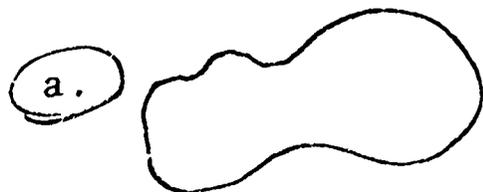
d. $\square = \frac{4}{4}$

41. At what point do the two line segments cross?



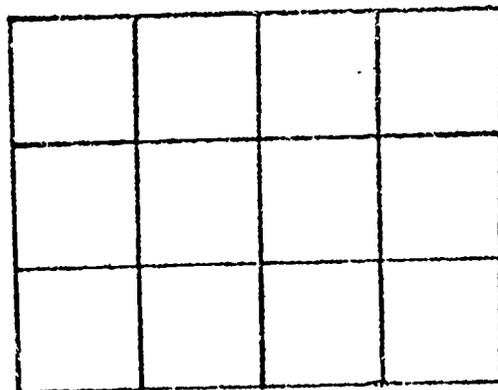
- a. at point P b. at point Q **c.** at point R d. at point

42. Which figure shows a simple closed curve?



43. The area of this rectangle is:

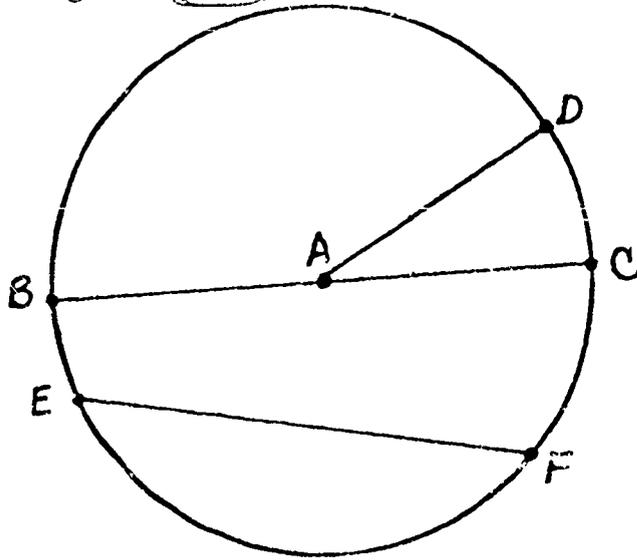
- a. 9 square units
b. 10 square units
c. 12 square units
d. 16 square units



44. What is the name of this quadrilateral?



- a. triangle b. rectangle c. square d. circle



45. In the circle above, point A is:

- a. a chord
b. a diameter
c. a radius
 d. the center

46. In the circle above, \overline{BC} is:

- a. a diagonal
 b. a diameter
c. a radius
d. the center

47. In the circle above, \overline{AD} is:

- a. a chord
b. a diameter
 c. a radius
d. the center

48. In the circle above, \overline{EF} is:

- a. a chord b. the center c. diameter d. radius

49.

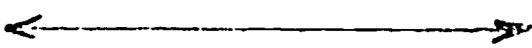


This figure is a

- a. triangle **b.** right angle c. diameter d. diagonal

FOR NUMBERS 50 THROUGH 54 MARK THE LETTER OF EACH CORRECT ANSWER

50.



a. point

D

51.



b. path

B

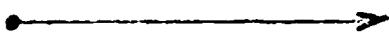
52.



c. ray

A

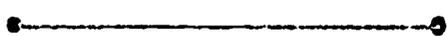
53.



d. line

C

54.

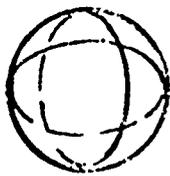


e. line segment

E

FOR NUMBERS 55 THROUGH 58 MARK THE LETTER OF EACH CORRECT ANSWER

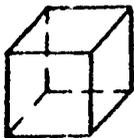
55.



a. cube

B

56.



b. sphere

A

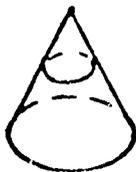
57.



c. cylinder

C

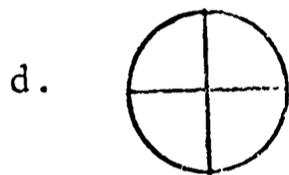
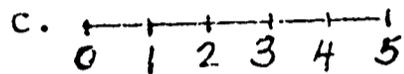
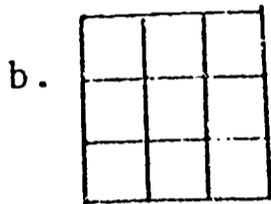
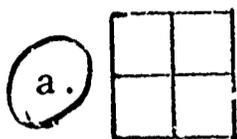
58.



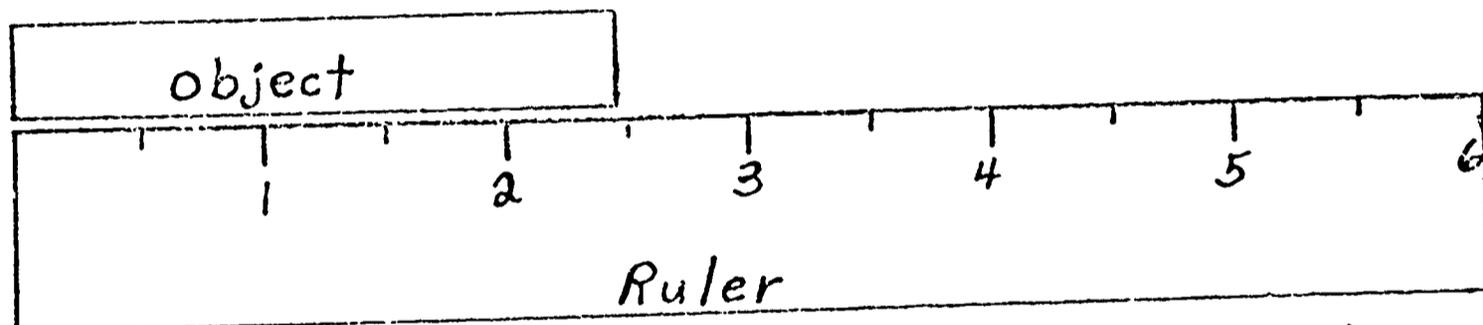
d. cone

D

59. Which area has only four square units?

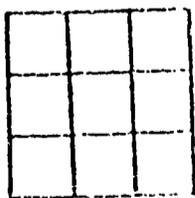


60. The length of this object to the nearest $\frac{1}{2}$ inch is



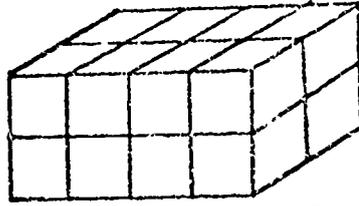
- a. 2 inches b. $2\frac{1}{2}$ inches c. 3 inches d. $3\frac{1}{2}$ inches

61. The number of square units like this  in the larger area is



- a. 2 square units
b. 6 square units
c. 3 square units
d. 9 square units

62. This shows one cube.  How many cubes would it take to fill this box?



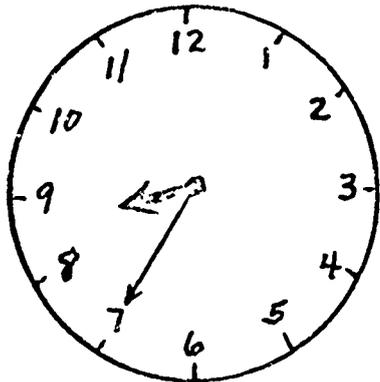
- a. 12 cubes b. 3 cubes c. 2 cubes **d. 16 cubes**

63. If this is a cup , how much liquid is in this glass container?



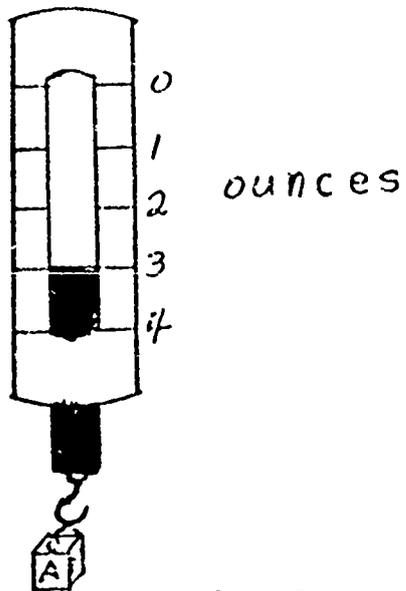
- a. 1 cup **b. 2 cups** c. 3 cups d. 4 cups

64. What time is it?



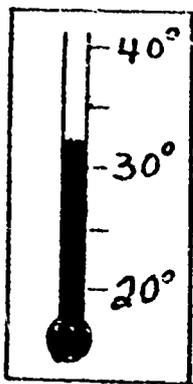
- a. 25 minutes to 9**
b. 7 minutes after 8
c. 10 minutes after 8
d. 7 o'clock

65. What is the weight of the box hanging on the scales?



- a. 1 ounce b. 2 ounces **c. 3 ounces** d. 4 ounces

66. Water freezes at the temperature shown on the thermometer. What temperature does the thermometer show?

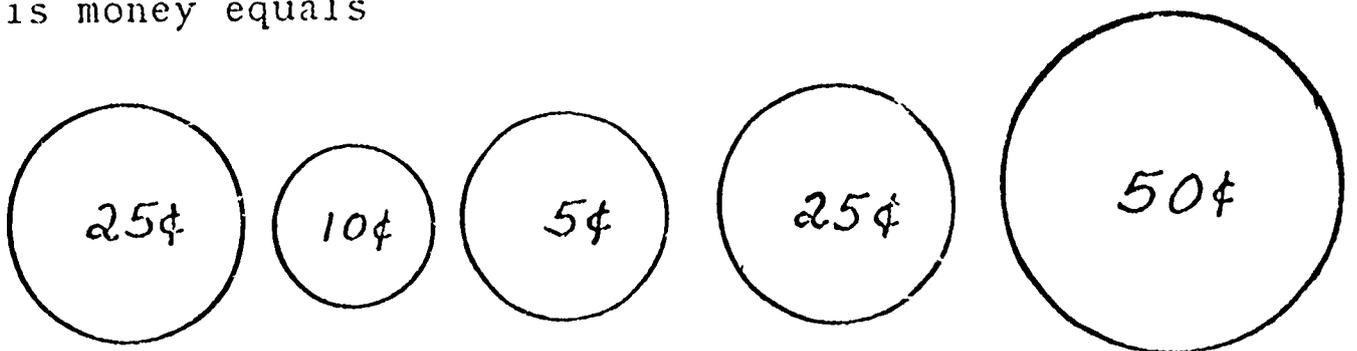


- a. 31° **b. 32°** c. 40° d. 50°

67. 25 pennies has the same value as

- a. 1 nickel b. 1 dime **c. 1 quarter** d. 1 dollar

68. This money equals



- a. \$1.25 b. \$10.15 **c. \$1.15** d. \$1.05

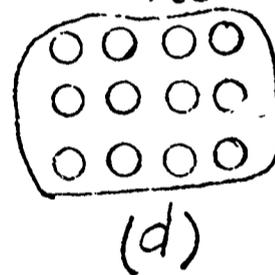
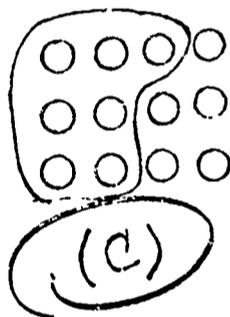
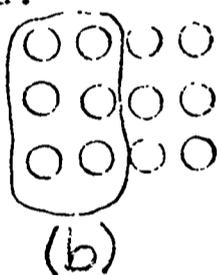
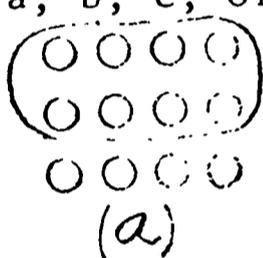
69. Which statement is true?

- a. 12 inches = 1 yard
- b. 50 pennies = 1 dollar
- c. 1 foot = 8 inches
- d. 12 inches = 1 foot

70. 9 inches + 5 inches =

- a. = 1 foot 4 inches
- b. = 13 inches
- c. = 1 foot 2 inches
- d. = 14 feet

71. Which set of \bigcirc s shows a ring drawn around $\frac{7}{12}$ of the set, a, b, c, or d?



72. $4000 + 600 + 90 + 5 =$

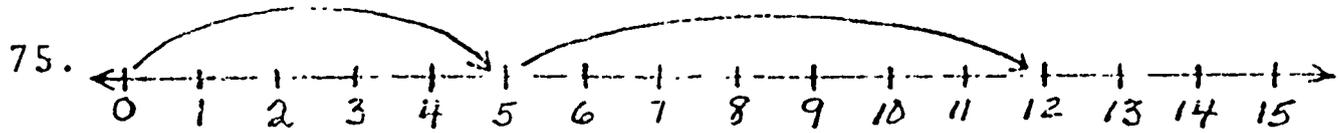
- a. = 4695
- b. = 5964
- c. = 4,000,600,905
- d. = 4,060,905

73. In Roman Numerals, 12 =

- a. II
- b. IXX
- c. VII
- d. XII

74. XIV is another name for _____.

- a. 41 **b. 14** c. 16 d. 25



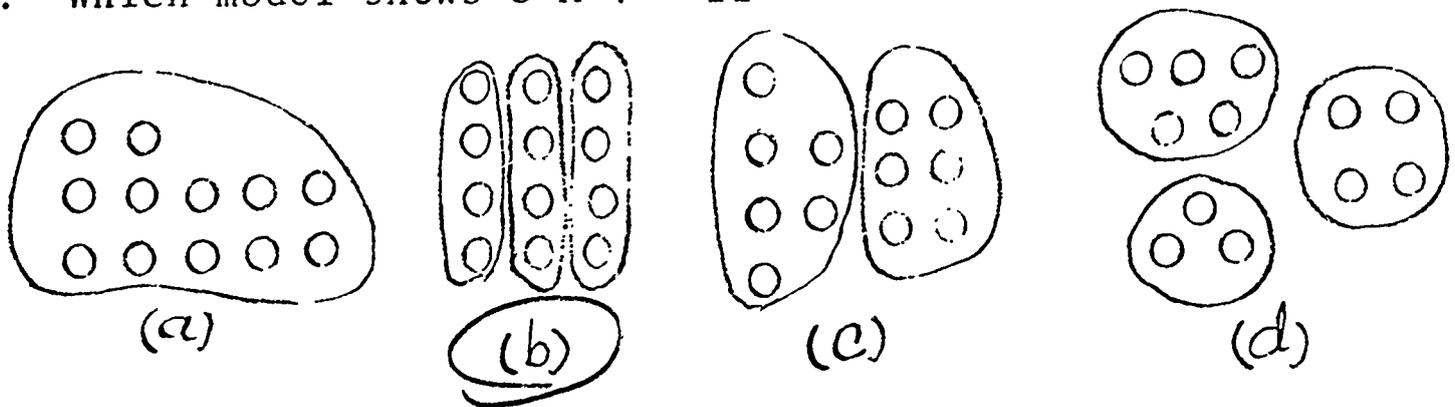
This number line shows that:

- a. $5 + 7 = 12$**
b. $12 - 5 = 7$
c. $5 + 8 = 13$
d. $5 + 10 = 15$

76. If $13 + 24 = 37$, which of these sentences is not true ?

- a. $24 + 13 = 37$
b. $37 - 24 = 13$
c. $24 - 13 = 37$
d. $37 - 13 = 24$

77. Which model shows $3 \times 4 = 12$



78. Which of these sets is divided into subsets of 3?

- a. $(XXX)(XXX)(XXX)(XXX)$**
b. $(XXXX)(XXX)(XXX)$
c. $(XXX)(XXXX)(XXXX)$
d. $(XXXX)(XXXX)(XXXX)$

79. Which of the following sets is divided into 3 equivalent subsets?

a. $(XXXXXX)(XXXX)(XXX)(XXX)$

b. $(XXXX)(XXXX)(XXXX)$

c. $(XXX)(XXXX)(XXXXX)$

d. $(XXXXXXXX)(XXXXXXXX)$

80. Which problem shows that $18 \div 6 = 3$

a.
$$\begin{array}{r} 18 \\ -6 \text{ ①} \\ \hline 12 \\ -6 \text{ ②} \\ \hline 6 \\ -6 \text{ ③} \\ \hline 0 \end{array}$$

b.
$$\begin{array}{r} 18 \\ -9 \text{ ①} \\ \hline 9 \\ -9 \text{ ②} \\ \hline 0 \end{array}$$

c.
$$\begin{array}{r} 18 \\ -3 \text{ ①} \\ \hline 15 \\ -3 \text{ ②} \\ \hline 12 \\ -3 \text{ ③} \\ \hline 9 \end{array}$$

81. Which of the following operations will "undo" $3 \times 5 = 15$?

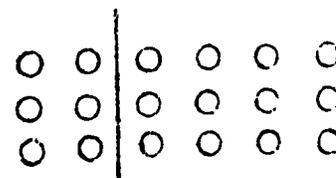
a. $15 - 5$

b. $15 + 5$

c. 5×3

d. $15 \div 5$

$$82. \quad 3 \times (\boxed{}) = (3 \times 2) + (3 \times 4)$$



From this model, find the value of $\boxed{}$

a. $\boxed{} = 2 + 5$

b. $\boxed{} = 2 + 3$

c. $\boxed{} = 2 + 4$

$$83. \quad 5 \times 7 = 5 \times (2 + 5) = (5 \times 2) + (5 \times 5) = \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$$

a. $\underline{15} + \underline{20}$

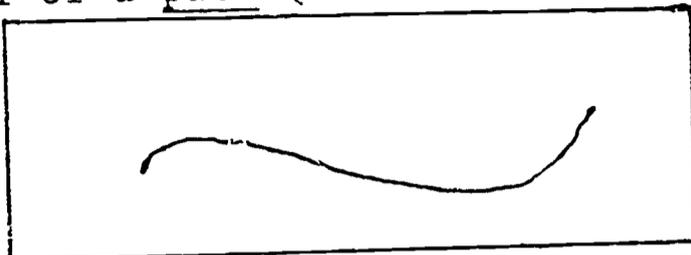
b. $\underline{10} + \underline{25}$

c. $\underline{25} + \underline{25}$

d. $\underline{7} + \underline{10}$

Part II

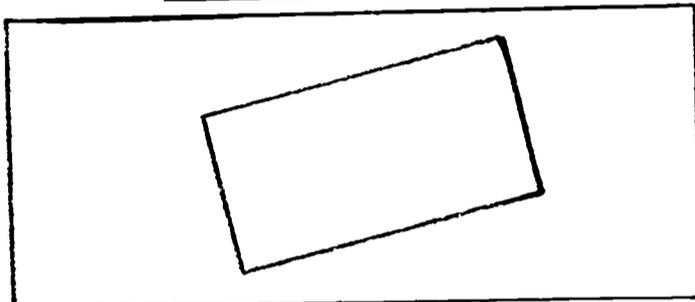
1. Draw a model of a path (curved line) in the box below.



Any curved line or straight line is acceptable.

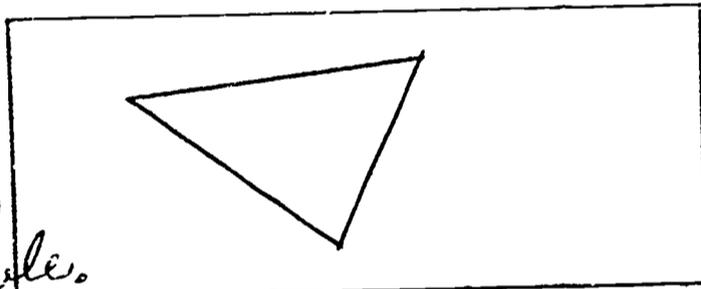
2. Draw a model of a rectangle in the box below.

Any quadrilateral with angles "reasonably" close to 90° is acceptable.

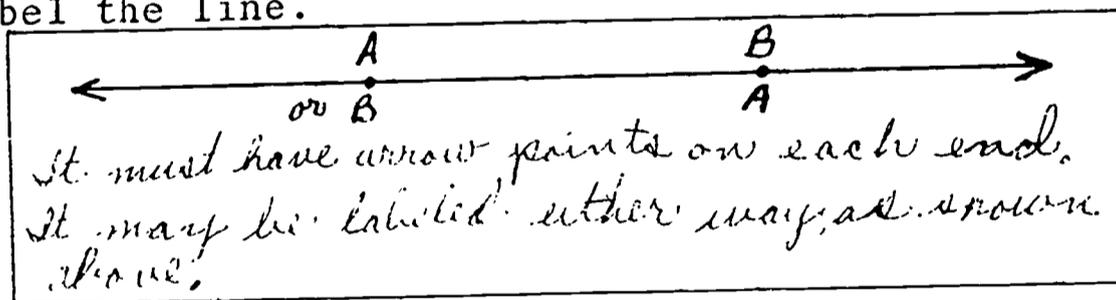


3. Draw a model of a triangle in the box below.

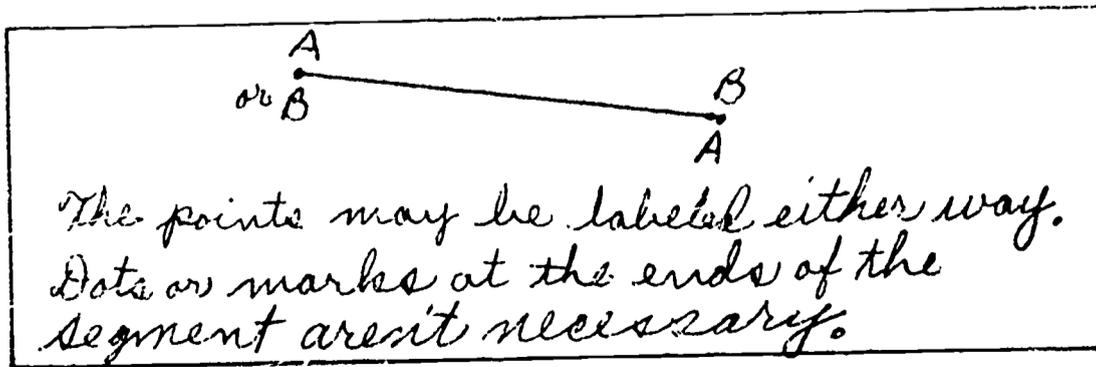
Any triangle is acceptable. A figure that has disconnected sides is unacceptable.



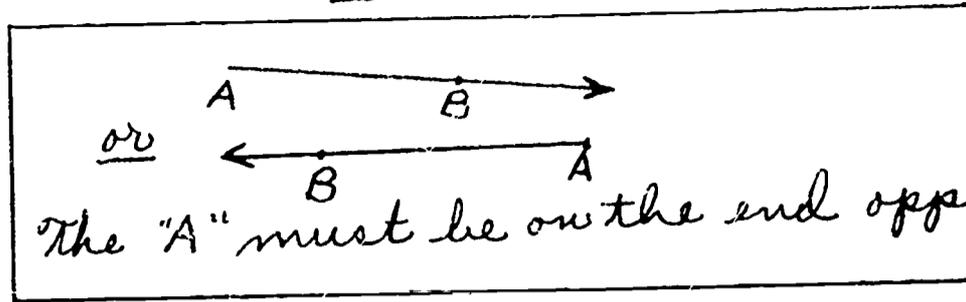
4. Draw a model of line AB (\overleftrightarrow{AB}) in the box below. Label the line.



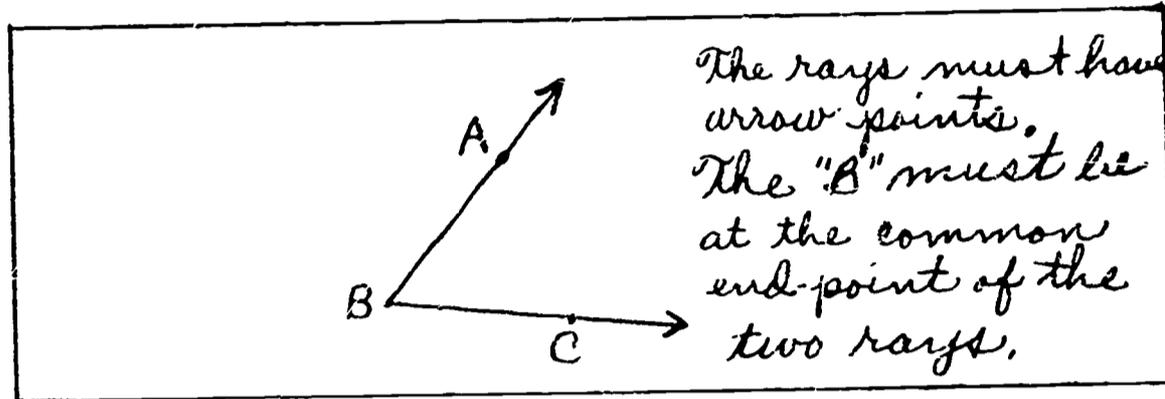
5. Draw a model of a line segment AB (\overline{AB}) in the box below. Label the line segment.



6. Draw a model of ray AB (\overrightarrow{AB}) in the box below. Label the ray.

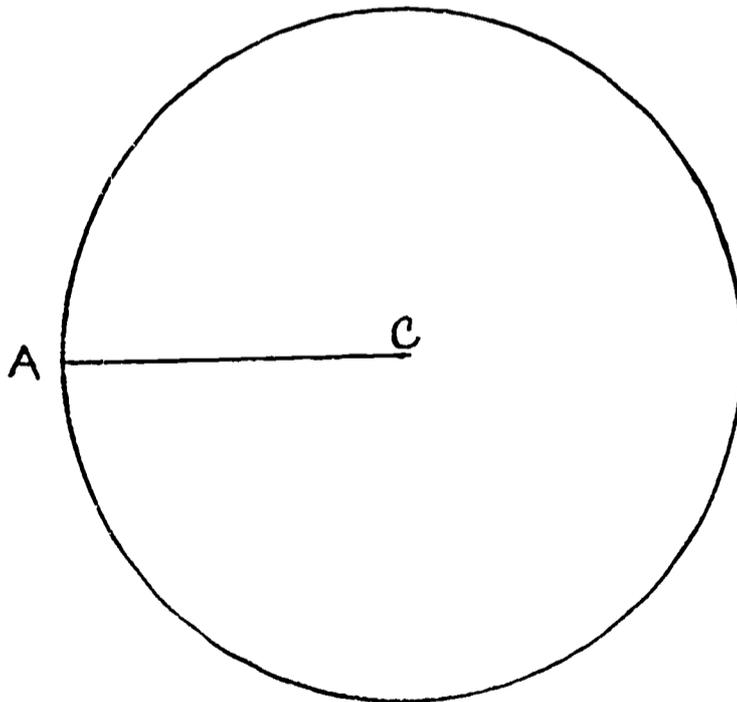


7. Draw a model of angle ABC ($\angle ABC$) in the box below so that points A, B and C are on the angle. Label the angle.



8. Using a compass draw a circle. Use point C as the center and AC as the radius.

The center must be at point C, not at A.



Part III

ADDITION TEST

Time limit: 2 minutes

(1)
$$\begin{array}{r} 5 \\ +4 \\ \hline 9 \end{array}$$

(2)
$$\begin{array}{r} 7 \\ +6 \\ \hline 13 \end{array}$$

(3)
$$\begin{array}{r} 8 \\ +7 \\ \hline 15 \end{array}$$

(4)
$$\begin{array}{r} 3 \\ +3 \\ \hline 6 \end{array}$$

(5)
$$\begin{array}{r} 5 \\ +2 \\ \hline 7 \end{array}$$

(6)
$$\begin{array}{r} 7 \\ +1 \\ \hline 8 \end{array}$$

(7)
$$\begin{array}{r} 5 \\ +5 \\ \hline 10 \end{array}$$

(8)
$$\begin{array}{r} 9 \\ +4 \\ \hline 13 \end{array}$$

(9)
$$\begin{array}{r} 7 \\ +0 \\ \hline 7 \end{array}$$

(10)
$$\begin{array}{r} 6 \\ +9 \\ \hline 15 \end{array}$$

(11)
$$\begin{array}{r} 7 \\ +4 \\ \hline 11 \end{array}$$

(12)
$$\begin{array}{r} 6 \\ +6 \\ \hline 12 \end{array}$$

(13)
$$\begin{array}{r} 8 \\ +3 \\ \hline 11 \end{array}$$

(14)
$$\begin{array}{r} 8 \\ +8 \\ \hline 16 \end{array}$$

(15)
$$\begin{array}{r} 5 \\ +7 \\ \hline 12 \end{array}$$

(16)
$$\begin{array}{r} 6 \\ +3 \\ \hline 9 \end{array}$$

(17)
$$\begin{array}{r} 3 \\ +5 \\ \hline 8 \end{array}$$

(18)
$$\begin{array}{r} 9 \\ +6 \\ \hline 15 \end{array}$$

(19)
$$\begin{array}{r} 7 \\ +7 \\ \hline 14 \end{array}$$

(20)
$$\begin{array}{r} 5 \\ +9 \\ \hline 14 \end{array}$$

(21)
$$\begin{array}{r} 3 \\ +9 \\ \hline 12 \end{array}$$

(22)
$$\begin{array}{r} 4 \\ +3 \\ \hline 7 \end{array}$$

(23)
$$\begin{array}{r} 6 \\ +8 \\ \hline 14 \end{array}$$

(24)
$$\begin{array}{r} 2 \\ +8 \\ \hline 10 \end{array}$$

SUBTRACTION TEST

Time limit: 2 minutes

$$\begin{array}{r} (25) \\ 11 \\ - 9 \\ \hline 2 \end{array}$$

$$\begin{array}{r} (26) \\ 11 \\ - 5 \\ \hline 6 \end{array}$$

$$\begin{array}{r} (27) \\ 12 \\ - 7 \\ \hline 5 \end{array}$$

$$\begin{array}{r} (28) \\ 14 \\ - 5 \\ \hline 9 \end{array}$$

$$\begin{array}{r} (29) \\ 10 \\ - 8 \\ \hline 2 \end{array}$$

$$\begin{array}{r} (30) \\ 14 \\ - 8 \\ \hline 6 \end{array}$$

$$\begin{array}{r} (31) \\ 12 \\ - 4 \\ \hline 8 \end{array}$$

$$\begin{array}{r} (32) \\ 17 \\ - 8 \\ \hline 9 \end{array}$$

$$\begin{array}{r} (33) \\ 16 \\ - 7 \\ \hline 9 \end{array}$$

$$\begin{array}{r} (34) \\ 6 \\ - 0 \\ \hline 6 \end{array}$$

$$\begin{array}{r} (35) \\ 6 \\ - 4 \\ \hline 2 \end{array}$$

$$\begin{array}{r} (36) \\ 10 \\ - 6 \\ \hline 4 \end{array}$$

$$\begin{array}{r} (37) \\ 18 \\ - 9 \\ \hline 9 \end{array}$$

$$\begin{array}{r} (38) \\ 15 \\ - 8 \\ \hline 7 \end{array}$$

$$\begin{array}{r} (39) \\ 13 \\ - 5 \\ \hline 8 \end{array}$$

$$\begin{array}{r} (40) \\ 10 \\ - 3 \\ \hline 7 \end{array}$$

$$\begin{array}{r} (41) \\ 4 \\ - 2 \\ \hline 2 \end{array}$$

$$\begin{array}{r} (42) \\ 8 \\ - 4 \\ \hline 4 \end{array}$$

$$\begin{array}{r} (43) \\ 9 \\ - 7 \\ \hline 2 \end{array}$$

$$\begin{array}{r} (44) \\ 5 \\ - 3 \\ \hline 2 \end{array}$$

$$\begin{array}{r} (45) \\ 15 \\ - 6 \\ \hline 9 \end{array}$$

$$\begin{array}{r} (46) \\ 3 \\ - 2 \\ \hline 1 \end{array}$$

$$\begin{array}{r} (47) \\ 7 \\ - 4 \\ \hline 3 \end{array}$$

$$\begin{array}{r} (48) \\ 5 \\ - 1 \\ \hline 4 \end{array}$$

MULTIPLICATION TEST

Time limit: 2 minutes

(49)
$$\begin{array}{r} 5 \\ \times 5 \\ \hline 25 \end{array}$$

(50)
$$\begin{array}{r} 9 \\ \times 4 \\ \hline 36 \end{array}$$

(51)
$$\begin{array}{r} 8 \\ \times 6 \\ \hline 48 \end{array}$$

(52)
$$\begin{array}{r} 4 \\ \times 8 \\ \hline 32 \end{array}$$

(53)
$$\begin{array}{r} 6 \\ \times 9 \\ \hline 54 \end{array}$$

(54)
$$\begin{array}{r} 7 \\ \times 4 \\ \hline 28 \end{array}$$

(55)
$$\begin{array}{r} 0 \\ \times 6 \\ \hline 0 \end{array}$$

(56)
$$\begin{array}{r} 2 \\ \times 4 \\ \hline 8 \end{array}$$

(57)
$$\begin{array}{r} 6 \\ \times 6 \\ \hline 36 \end{array}$$

(58)
$$\begin{array}{r} 7 \\ \times 7 \\ \hline 49 \end{array}$$

(59)
$$\begin{array}{r} 5 \\ \times 9 \\ \hline 45 \end{array}$$

(60)
$$\begin{array}{r} 3 \\ \times 7 \\ \hline 21 \end{array}$$

(61)
$$\begin{array}{r} 3 \\ \times 9 \\ \hline 27 \end{array}$$

(62)
$$\begin{array}{r} 4 \\ \times 3 \\ \hline 12 \end{array}$$

(63)
$$\begin{array}{r} 6 \\ \times 8 \\ \hline 48 \end{array}$$

(64)
$$\begin{array}{r} 2 \\ \times 8 \\ \hline 16 \end{array}$$

(65)
$$\begin{array}{r} 7 \\ \times 6 \\ \hline 42 \end{array}$$

(66)
$$\begin{array}{r} 8 \\ \times 7 \\ \hline 56 \end{array}$$

(67)
$$\begin{array}{r} 5 \\ \times 2 \\ \hline 10 \end{array}$$

(68)
$$\begin{array}{r} 4 \\ \times 6 \\ \hline 24 \end{array}$$

(69)
$$\begin{array}{r} 9 \\ \times 9 \\ \hline 81 \end{array}$$

(70)
$$\begin{array}{r} 8 \\ \times 8 \\ \hline 64 \end{array}$$

(71)
$$\begin{array}{r} 3 \\ \times 5 \\ \hline 15 \end{array}$$

(72)
$$\begin{array}{r} 1 \\ \times 4 \\ \hline 4 \end{array}$$

DIVISION TEST

Time limit: 2 minutes

(73)

$$2 \overline{)4} \quad 2$$

(74)

$$7 \overline{)14} \quad 2$$

(75)

$$2 \overline{)6} \quad 3$$

(76)

$$4 \overline{)20} \quad 5$$

(77)

$$9 \overline{)18} \quad 2$$

(78)

$$6 \overline{)30} \quad 5$$

(79)

$$7 \overline{)35} \quad 5$$

(80)

$$3 \overline{)9} \quad 3$$

(81)

$$7 \overline{)7} \quad 1$$

(82)

$$2 \overline{)16} \quad 8$$

(83)

$$3 \overline{)24} \quad 8$$

(84)

$$6 \overline{)18} \quad 3$$

(85)

$$4 \overline{)16} \quad 4$$

(86)

$$3 \overline{)15} \quad 5$$

(87)

$$1 \overline{)4} \quad 4$$

(88)

$$9 \overline{)54} \quad 6$$

(89)

$$7 \overline{)0} \quad 0$$

(90)

$$4 \overline{)36} \quad 9$$

(91)

$$3 \overline{)24} \quad 8$$

(92)

$$2 \overline{)8} \quad 4$$

(93)

$$6 \overline{)48} \quad 8$$

(94)

$$9 \overline{)45} \quad 5$$

(95)

$$8 \overline{)64} \quad 8$$

(96)

$$5 \overline{)40} \quad 8$$

MATHEMATICS CONCEPTS TEST

Basic Test: Level Four

Answer Key and Teachers' Guide

MATHEMATICS CONCEPTS TEST

Basic Test: Level Four
(Grade Four)

ANSWER KEY AND TEACHERS' GUIDE

Description of Test

Items for this mathematics test have been written to assess behavioral objectives proposed by the Mathematics Curriculum Guide, K - 6. Multiple choice test items are used where possible. Other behavioral objectives are tested by requiring the student to construct geometric figures. Immediate recall of basic facts is tested by four timed tests. A cross reference of objectives from the Curriculum Guide and items in the test is included with the Teachers' Guide.

Multiple Choice Test Items

Part I of the test consists of items which can be machine scored directly from the IBM 1230 answer sheet. Students mark answers on answer sheets. The test administrator should inform all students to mark each response carefully with a No. 2 black lead pencil. Answer sheets marked with ink or crayon cannot be machine scored. There should be no extra marks of any type on the answer sheet. Teachers may want to hand score certain answer sheets. In the process of hand scoring, no mark should be placed on the answer sheet until machine scoring has been completed.

Computer Analysis

Computer analysis of test results will develop the following information:

1. Number of items correct, missed and unanswered for each student.
2. Percentage score for each student.
3. Frequency distribution of percentage scores.
4. Mean score.
5. Standard deviation.
6. Item analysis -- biserial correlation.

Identification of Student Answer Sheets

Student name and other information on the upper left hand side of the answer sheet is used for a quick visual identification. However, the computer does not use this data. In the upper right hand section space is provided to code a student identification number. Data will be processed by the computer in accordance with this number. The recommended procedure for assigning student identification numbers is as follows:

1. Assign each student a different six (6) digit number. If desired the first digits may be zeros, i. e. 000001, 000002, etc. The test results will be recorded numerically by this student number.
2. Record the number vertically in the column of boxes, one digit to a box, starting at the top.
3. Darken in the corresponding digit in the rows to the right of the boxes, one digit to a box.
4. The teacher should keep a record of the number she has assigned to each student so that she can identify the student by that number when the tests are returned.
5. Two answer sheets are required for this test. Care should be taken that each student uses the same number for both answer sheets.

Teacher Scored Subtests

Parts II and III of the test consist of items which must be hand scored. After hand scoring an answer sheet should be prepared for each student to record the responses. Mark "a" for a correct response and "b" for an incorrect response. For unanswered questions, place no mark on the answer sheet.

Part II consists of seven items. Record the responses for this subtest on the first seven rows of the answer sheet. Part III consists of ninety-six items. Record the responses in rows 8 - 103 for this subtest.

Time Limits For Tests

This test is designed to be a mastery test. Consequently, time limits have been established which will permit over ninety percent of the students to attempt every item on the test. Students should be told that there is no penalty for guessing. It is better to attempt a difficult item than to pass it over.

Two sittings are recommended for Part I. The test however, should be administered in one day. This will preclude students checking on difficult items and perhaps changing their answers on the answer sheet.

- | | | |
|----|----------|------------|
| 1. | Part I | 90 Minutes |
| 2. | Part II | 20 Minutes |
| 3. | Part III | 8 Minutes |

Directions To Students

The student is expected to read the test and make a response either on the answer sheet or in the test booklet. No marks should be made in the test booklet for Part I. For Parts II and III the answer is written in the booklet. Unknown mathematical terms or processes should not be explained to students before or during the test. In Part II students may be informed that a "model" is a "picture." Construction should be done with a straight edge.

Supplies Needed For Testing

1. For Part I each student should have two No. 2 pencils, scratch paper, one test and one answer sheet.
2. For Part II students will need a compass, a straight edge, pencils and one test.
3. For Part III students will need pencils and one copy of the test.

Norms

District norms will be made available so that student achievement in different schools can be compared. Teachers should be more concerned with the item analysis and cross reference of objectives and test items. A study of test results for any class will provide insights concerning areas where more instruction is needed both for individuals and groups of students.

BASIC TEST: LEVEL FOUR

A CROSS REFERENCE OF OBJECTIVES FROM THE CURRICULUM GUIDE AND ITEMS
IN THE MATHEMATICS COVERAGE TEST

CODE: "N" means number strand; "Nu" means numeration strand;
"O" means operations strand; "G" means geometry strand;
and, "M" means measurement strand.

An example: M-4 means the fourth objective under measurement.

OBJECTIVE #	ITEM #
N-1	1
N-2&4	2
N-3	3
N-5	4
N-7	5
N-6	6
N-8	7
N-9	8
N-10	9
N-11	10
N-12	11
N-14	12
N-15	13
Nu-1	14
Nu-2	15
Nu-4	16
Nu-8	17
Nu-9	18
Nu-11	19
Nu-12	20
Nu-13	21
O-1	22
O-2	23
O-4	24
O-5	25
O-6	26, 27
O-7	28, 29
O-12	30
O-14	31
O-15	32
O-16	33
O-17	34
O-18	35

OBJECTIVE #	ITEM #
O-20	36
O-21	37
O-22	38
O-23	24
O-24	41, 42
O-25	43
O-27	44, 45
G-1	46, 47
G-2	48
G-4	49
G-5	50
G-2	51-57
G-6	58
G-7	79
G-8	59
G-9	81
G-2	60-69
G-3	70-74
G-11	NC
M-1	75
M-2	76
M-3	77
M-4	78
M-5	79
M-6	80
M-7	81
M-8	82
M-9	83
M-10	84
M-11	85
M-12	86
M-13	87

N-13 88

Nu-3 89

Nu-5 90

Nu-6 91

Nu-7 92

Nu-10 93

O-8 94

O-9 95

O-10 96

O-13 97

O-19 98

O-26 99-100

PART II

OBJECTIVE # ITEM #

G-10 1-5

G-12 6

G-13 7

Addition Test 0-3
Subtraction Test 0-3
Multiplication Test 0-11
Division Test 0-11

NC means not covered

LAST NAME PLEASE PRINT

FIRST

SECTION NO.

STUDENT IDENTIFICATION NUMBER

Johnson

LARRY 5

BLACKEN APPROPRIATE DIGIT HERE

Mrs. R. Roberts

SCHOOL NAME

SECTION NO.

Laura Dearing

215

MATH

1-16-69

Level 1 PART 4

INSTRUCTIONS Please Read Carefully

- 1 Erase completely any answer you change
- 2 Do not write in margins
- 3 Use No. 2 pencil and fill box
- 4 Make marks heavy and black
- 5 For T, True and F, False questions use T for true and F for false

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9

SECTION A

1	a	b	c	d	e	19	a	b	c	d	e	37	a	b	c	d	e	55	a	b	c	d	e
2	a	b	c	d	e	20	a	b	c	d	e	38	a	b	c	d	e	56	a	b	c	d	e
3	a	b	c	d	e	21	a	b	c	d	e	39	a	b	c	d	e	57	a	b	c	d	e
4	a	b	c	d	e	22	a	b	c	d	e	40	a	b	c	d	e	58	a	b	c	d	e
5	a	b	c	d	e	23	a	b	c	d	e	41	a	b	c	d	e	59	a	b	c	d	e
6	a	b	c	d	e	24	a	b	c	d	e	42	a	b	c	d	e	60	a	b	c	d	e
7	a	b	c	d	e	25	a	b	c	d	e	43	a	b	c	d	e	61	a	b	c	d	e
8	a	b	c	d	e	26	a	b	c	d	e	44	a	b	c	d	e	62	a	b	c	d	e
9	a	b	c	d	e	27	a	b	c	d	e	45	a	b	c	d	e	63	a	b	c	d	e
10	a	b	c	d	e	28	a	b	c	d	e	46	a	b	c	d	e	64	a	b	c	d	e
11	a	b	c	d	e	29	a	b	c	d	e	47	a	b	c	d	e	65	a	b	c	d	e
12	a	b	c	d	e	30	a	b	c	d	e	48	a	b	c	d	e	66	a	b	c	d	e
13	a	b	c	d	e	31	a	b	c	d	e	49	a	b	c	d	e	67	a	b	c	d	e
14	a	b	c	d	e	32	a	b	c	d	e	50	a	b	c	d	e	68	a	b	c	d	e
15	a	b	c	d	e	33	a	b	c	d	e	51	a	b	c	d	e	69	a	b	c	d	e
16	a	b	c	d	e	34	a	b	c	d	e	52	a	b	c	d	e	70	a	b	c	d	e
17	a	b	c	d	e	35	a	b	c	d	e	53	a	b	c	d	e	71	a	b	c	d	e
18	a	b	c	d	e	36	a	b	c	d	e	54	a	b	c	d	e	72	a	b	c	d	e

Sample

SECTION B

73	a	b	c	d	e	90	a	b	c	d	e	f	g	h	i	j	10
74	a	b	c	d	e	91	a	b	c	d	e	f	g	h	i	j	10
75	a	b	c	d	e	92	a	b	c	d	e	f	g	h	i	j	10
76	a	b	c	d	e	93	a	b	c	d	e	f	g	h	i	j	10
77	a	b	c	d	e	94	a	b	c	d	e	f	g	h	i	j	10
78	a	b	c	d	e	95	a	b	c	d	e	f	g	h	i	j	10
79	a	b	c	d	e	96	a	b	c	d	e	f	g	h	i	j	10
80	a	b	c	d	e	97	a	b	c	d	e	f	g	h	i	j	10
81	a	b	c	d	e	98	a	b	c	d	e	f	g	h	i	j	10
82	a	b	c	d	e	99	a	b	c	d	e	f	g	h	i	j	10
83	a	b	c	d	e	100	a	b	c	d	e	f	g	h	i	j	10
84	a	b	c	d	e	101	a	b	c	d	e	f	g	h	i	j	10
85	a	b	c	d	e	102	a	b	c	d	e	f	g	h	i	j	10
86	a	b	c	d	e	103	a	b	c	d	e	f	g	h	i	j	10
87	a	b	c	d	e	104	a	b	c	d	e	f	g	h	i	j	10
88	a	b	c	d	e	105	a	b	c	d	e	f	g	h	i	j	10
89	a	b	c	d	e												



MATHEMATICS CONCEPTS TESTS

Basic Test: Level Four

Answer Key

SCORING KEY

MATHEMATICS CONCEPTS TEST

Basic Test: Level Four

Part I

1. The set of \triangle 's in this collection $\triangle \bigcirc \square \triangle \bigcirc \triangle$ has
a. 6 members b. 2 members **c.** 3 members d. 4 members
2. Which shows a pair of equivalent sets?
a. $\{a, c, 4\}$ and $\{\text{cow, horse, dog}\}$
b. $\{a, c, 4\}$ and $\{\text{cow}\}$
c. $\{\text{cow, horse, dog}\}$ and $\{\text{cow}\}$
d. $\{a, c, 4\}$ and $\{a, c\}$
3. One horse has
a. 8 feet b. 5 feet c. 10 feet **d.** 4 feet
4. Which set has no members?
a. The set of all students with black hair
b. The set of all birds with wings
c. The set of all birds with three wings
d. The set of all brown haired students in the sixth grade.
5. The cardinal number of this set $\{2, \triangle, 4, \square\}$ is
a. 5 **b.** 4 c. 3 d. fourth

6. A subset of all Ford automobiles is

- a. All blue Ford automobiles
- b. All Cadillacs
- c. All Fords and all Buicks
- d. All automobiles

7. Which pair of numerals come before and after 1910?

- a. 1909, _____, 1911
- b. 1908, _____, 1909
- c. 1911, _____, 1912
- d. 1909, _____, 1910

8. $R = \{7, 5, 8, 3, 1, 4, 2\}$

How many odd numbers are there in set R?

- a. 0 b. 7 c. 3 d. 4

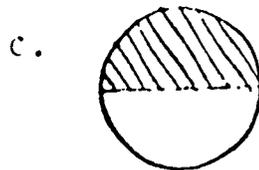
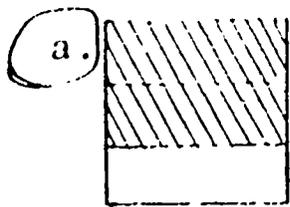
9. Which set of numerals is arranged from greatest to least?

- a. 0, 5, 10, 100, 2000
- b. 5, 3, 19, 320, 78
- c. 1500, 879, 340, 59, 10
- d. 10, 59, 340, 879, 1500

10. Which statement is true?

- a. $6 = 2 + 3$ b. $5 < 2 + 3$ c. $5 = 6$ d. $6 > 2 + 3$

11. Which model shows $\frac{2}{3}$?



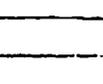
12. Which statement is true?

a. $\frac{2}{3} < \frac{4}{6}$

b. $\frac{2}{3} > \frac{4}{6}$

c. $\frac{2}{3} = \frac{4}{6}$

d. $\frac{2}{3} \neq \frac{4}{6}$

13. The third object in this row     is a square.
"Third" is

a. a cardinal number

b. an ordinal number

c. neither cardinal nor ordinal

14. Which is not a name for 12?

a. 4×3

b. 2×6

c. $5 + 3 + 4$

d. $14 - 3$

15. Two thousand, four hundred six =

a. 246

b. 2,046

c. 2,406

d. 20,406

16. In the numeral 86,352, the six names

a. six million

b. sixty eight

c. six thousand

d. eighty six

17. This model  shows

a. $\frac{6}{5}$

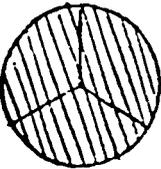
b. $\frac{1}{5}$

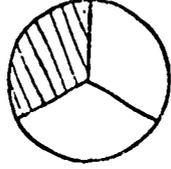
c. $\frac{5}{6}$

d. $\frac{4}{5}$

18. In $\frac{3}{4}$
- a. 3 is the denominator
 - b. 4 is the addend
 - c. 4 is the numerator
 - d. 4 is the denominator

19. The simplest form (lowest terms) of the fraction $\frac{10}{20}$ is
- a. $\frac{1}{2}$
 - b. $\frac{5}{10}$
 - c. $\frac{2}{1}$
 - d. $\frac{3}{4}$

20. These models show:
- 


- a. $\frac{2}{3}$
 - b. $1\frac{1}{3}$
 - c. $1\frac{1}{4}$
 - d. $\frac{4}{5}$

21. 3271 rounded to the nearest hundred is
- a. 3270
 - b. 3200
 - c. 3300
 - d. 3000

22. If $243 + \square = 762$, then $\square =$
- a. 1005 **b. 519** c. 243 d. 762

23.
$$\begin{array}{r} 347 \\ -124 \\ \hline 223 \end{array}$$
 Which of the items below is a check of the answer to this problem?

a.
$$\begin{array}{r} 124 \\ -223 \\ \hline 101 \end{array}$$
 b.
$$\begin{array}{r} 223 \\ -124 \\ \hline 99 \end{array}$$
 c.
$$\begin{array}{r} 347 \\ \times 124 \\ \hline 43,028 \end{array}$$
 **d.
$$\begin{array}{r} 124 \\ +223 \\ \hline 347 \end{array}$$**

24. Which arrangement seems easiest for adding these numbers?

- a. $9 + 8 + 1 + 2$
- b. $8 + 9 + 1 + 2$
- c. $8 + 2 + 9 + 1$**
- d. $9 + 2 + 1 + 8$

25. $124 + \square = 124 - \square$
- a. $\square = 1$ b. $\square = 10$ c. $\square = 100$ **d. $\square = 0$**

26. Solve:
- $$\begin{array}{r} 62,018 \\ -49,325 \\ \hline \square \end{array}$$

- a. $\square = 12,693$**
- b. $\square = 62,018$
- c. $\square = 27,313$
- d. $\square = 11,130$

27. Solve:

$$\begin{array}{r} 3946 \\ + 2473 \\ \hline \square \end{array}$$

- a. $\square = 6,419$
- b. $\square = 5,319$
- c. $\square = 7,429$
- d. $\square = 6,409$

28. $75 - 21 = \square$

- a. $\square = 50$
- b. $\square = 54$
- c. $\square = 96$
- d. $\square = 44$

29. $132 + 146 = \square$

- a. $\square = 287$
- b. $\square = 178$
- c. $\square = 288$
- d. $\square = 278$

30. $45 \square 9 = 5$. What symbol placed in the box would make this statement true?

- a. $+$
- b. $-$
- c. \times
- d. \div

31. To make this statement true, $42 \times \square = \square \times 42$, \square can be

- a. any number
- b. 1 only
- c. zero only
- d. 42 only

32. To make this statement true, $3 \times (6 \times \square) = (3 \times 6) \times \square$
can be

- a. any number
- b. 1 only
- c. zero only
- d. 42 only



33. Which grouping seems to make this problem easiest to solve?

a. $(5 \times 7) \times 2 = 70$

b. $(7 \times 2) \times 5 = 70$

c. $(2 \times 5) \times 7 = 70$

d. $2 \times (5 \times 7) = 70$

34. $52 \div \square = 52 \times \square$ is true for $\square =$

a. any number b. 0 only c. 52 only d. 1 only

35. $437 \times 0 = \square$

a. $\square = 0$ b. $\square = 437$ c. $\square = 10$ d. $\square = 1$

36. $3 \times 123 =$

a. $(3 \times 1) + (3 \times 2) + (3 \times 3)$

b. $(3 \times 12) + (3 \times 3)$

c. 363

d. $(3 \times 100) + (3 \times 20) + (3 \times 3)$

37. $(40 \times 32) + (8 \times 32) = \square \times 32$

a. $\square = 40$ b. $\square = 48$ c. $\square = 84$ d. $\square = 8$

38. $250 \times 10 =$

a. 2,500 b. 25 c. 250 d. 25,000

39. Solve:

$$\begin{array}{r} 213 \\ \times 21 \\ \hline \end{array}$$

a. 4573 b. 5473 c. 4473 d. 4463

40. Solve:
$$\begin{array}{r} 49 \\ \times 35 \\ \hline \end{array}$$

- a. 1825 b. 1715 c. 2715 d. 1705

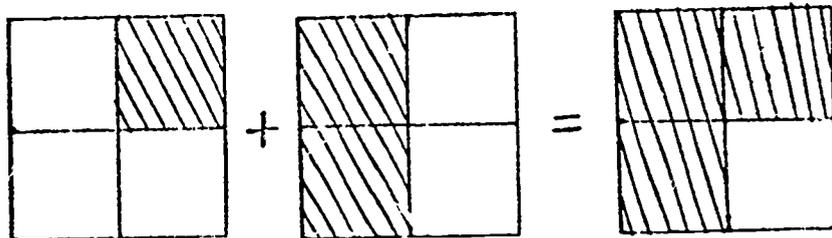
41. Solve: $15 \overline{)240}$

- a. 16 b. 16 r5 c. 15 r5 d. 15

42. Solve: $21 \overline{)6190}$

- a. 294 b. 295 r6 c. 285 r6 d. 294 r16

43. These models show that:



- a. $\frac{1}{4} + \frac{2}{4} = \frac{1}{2}$ b. $\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$ c. $\frac{1}{4} + \frac{2}{4} = \frac{3}{8}$ d. $1 + 2 = \frac{3}{4}$

44. Find the sum
$$\begin{array}{r} \$75.02 \\ 16.98 \\ + 17.50 \\ \hline \end{array}$$

- a. \$109.50 b. \$99.50 c. \$109.52 d. \$119.60

45. Find the difference
$$\begin{array}{r} \$123.00 \\ - 95.37 \\ \hline \end{array}$$

- a. \$27.53 b. \$28.63 c. \$26.63 d. \$27.63

46. The set of all points in a plane two inches from a given point is:

a. a two inch square

b. a triangle

c. a circle

d. a ray

47. The set of points contained in two rays with a common end point is

a. another ray

b. an angle

c. a circle

d. a triangle

48.  each of these figures is a

a. a circle

b. diagonal

c. rectangle

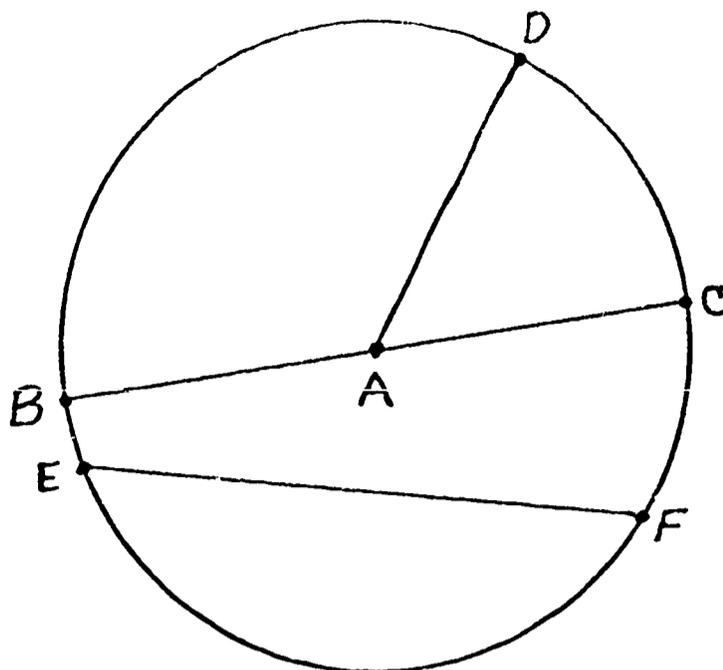
d. polygon

49. Parallel lines have _____ point(s) in common?

a. 0 b. 1 c. 2 d. many

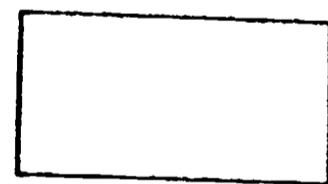
50. Two intersecting lines have _____ point(s) in common?

a. 0 b. 1 c. 2 d. many



51. In the circle above, point A is
 a. a chord b. a diameter c. a radius **d.** the center
52. In the circle above \overline{BC} is
 a. a diagonal **b.** a diameter c. a radius d. the center
53. In the circle above \overline{AD} is
 a. a chord b. a diameter **c.** a radius d. the center
54. In the circle above, \overline{EF} is
a. a chord b. a diameter c. a radius d. the center

55. What is the name of this quadrilateral?



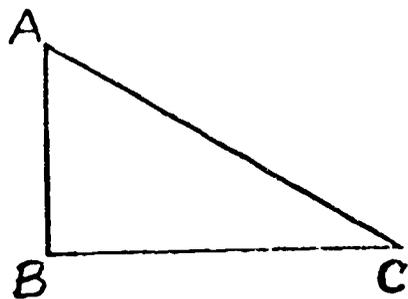
- a. triangle **b.** rectangle c. square d. diagonal

56. What is the name of this quadrilateral?



- a. rectangle
 b. triangle
 c. square
d. parallelogram

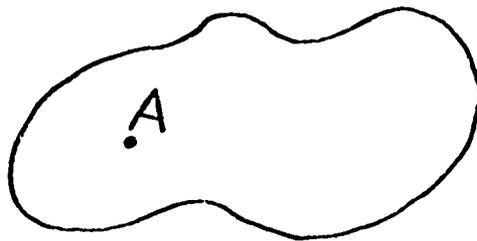
57.



Angle ABC is

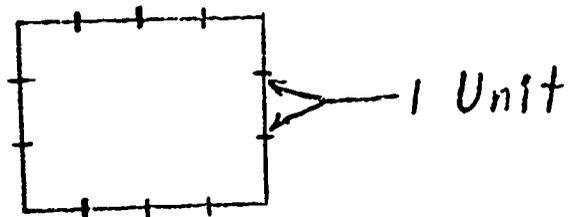
- a. a right angle b. an acute angle c. an obtuse angle d. a

58. In this simple closed curve, point A is:



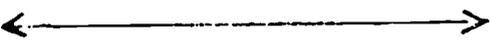
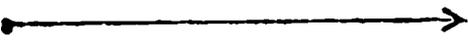
- a. in the exterior
b. in the interior
c. parallel to the curve
d. on the perimeter

59. The area of this rectangle is

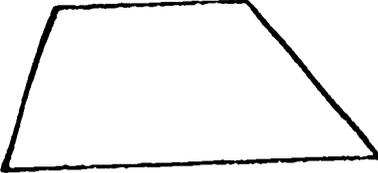
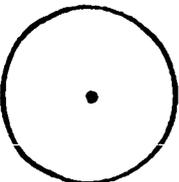
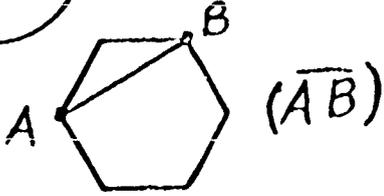


- a. 14 square units
b. 15 square units
c. 12 square units
d. 10 square units

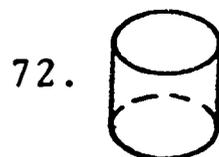
MATCHING: FOR NUMBERS 60 THROUGH 64 MARK THE LETTER OF THE CORRECT ANSWER

- | | | | |
|-----|--|-----------------|---|
| 60. |  | a. point | D |
| 61. |  | b. path | B |
| 62. |  | c. ray | C |
| 63. |  | d. line | H |
| 64. |  | e. line segment | E |

MATCHING: FOR NUMBERS 65 THROUGH 69 MARK THE LETTER OF THE CORRECT ANSWER

- | | | | |
|-----|--|------------------|---|
| 65. |  | a. angle | C |
| 66. |  | b. triangle | B |
| 67. |  | c. quadrilateral | D |
| 68. |  | d. circle | E |
| 69. |  | e. diagonal | F |

MATCHING: FOR NUMBERS 70 THROUGH 74 MARK THE LETTER OF THE CORRECT ANSWER



a. cube

b. sphere

c. cylinder

d. cone

e. pyramid

B

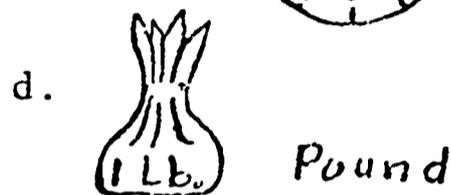
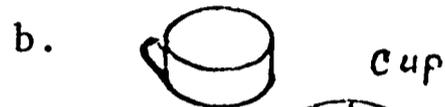
E

C

D

A

75. To measure the length of this line segment you would use



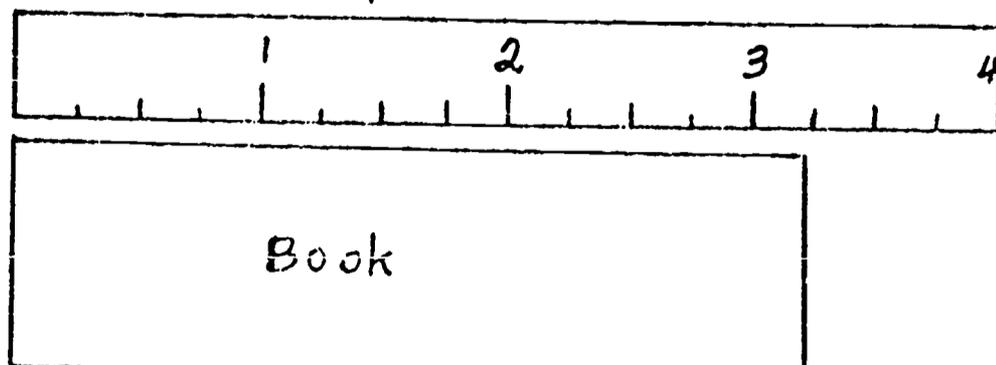
76. The area of your desk top could be named in either

- a. square feet or square inches
b. inches or feet
c. pounds or ounces
d. minutes or hours

77. The distance to a city 92 miles away correct to the nearest 10 miles could be

- a. 100 miles b. 95 miles c. 90 miles d. 85 miles

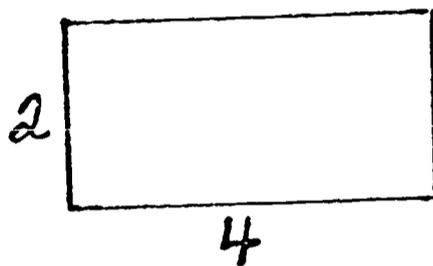
78. To the nearest $\frac{1}{4}$ inch the length of this book is



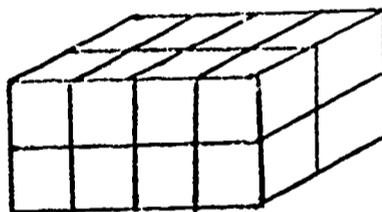
- a. $2\frac{3}{4}$ inches b. 3 inches c. $3\frac{1}{4}$ inches d. $3\frac{1}{2}$ inches

79. If a triangle is 4 meters on each side, its perimeter is
a. 4 meters b. 16 meters c. 3 meters **d. 12 meters**

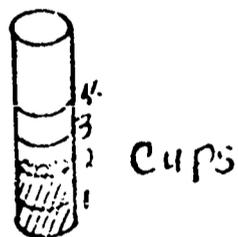
80. If a rectangle is four inches wide and two inches high its area is



- a. 6 meters
b. 8 square inches
c. 6 square inches
d. 2 gallons
81. If the space figure shown here is four units long, two units wide and two units high, how many cubic units does it contain?

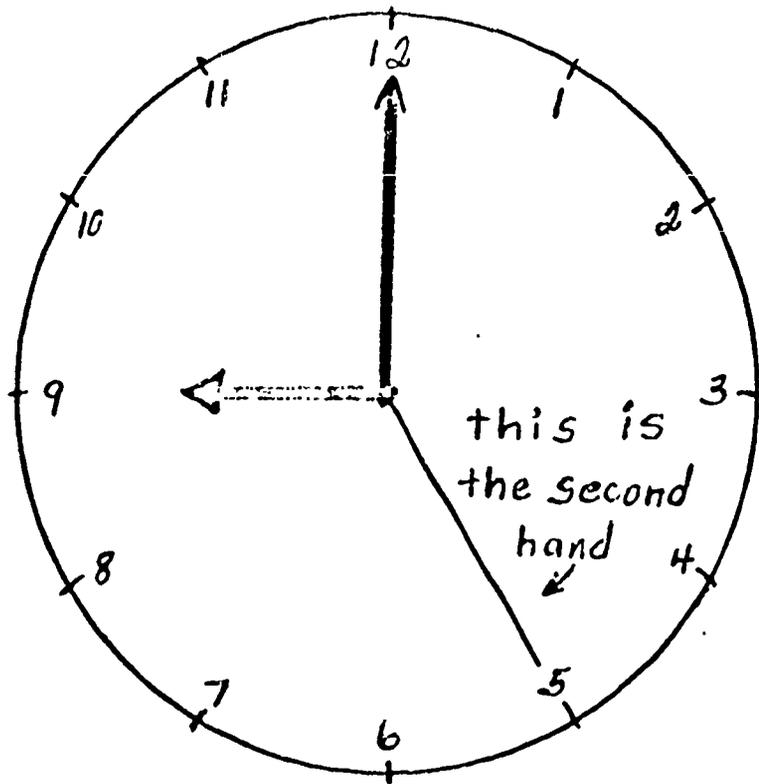


- a. 422 b. 4 **c. 16** d. 8
82. If this  is a cup, then to the nearest cup how much liquid is in this glass container?



- a. 1 cup **b. 2 cups** c. 3 cups d. 4 cups

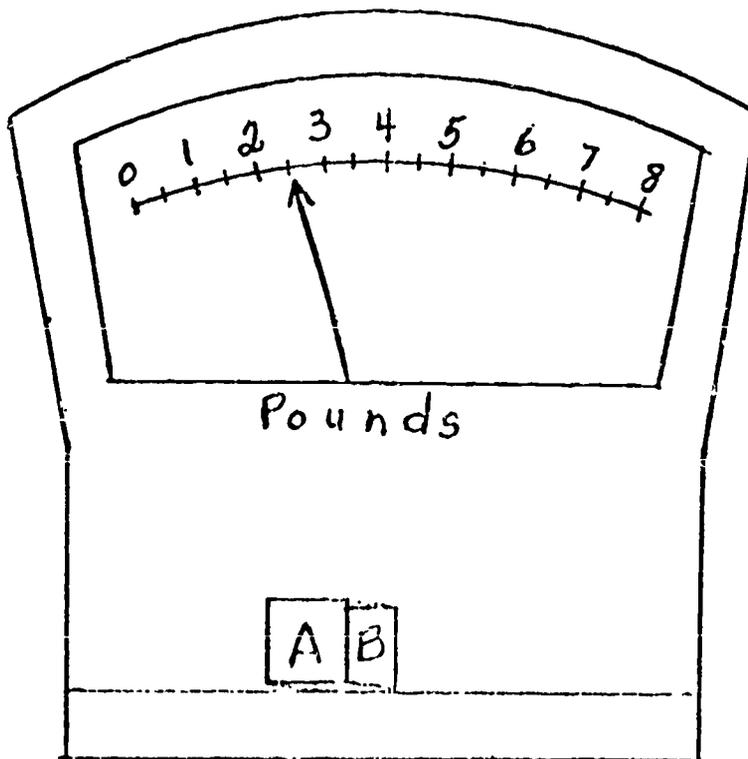
83.



How many seconds after 9:00 is shown on the above clock?

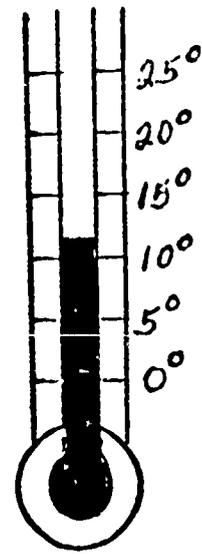
- a. 15 seconds b. 20 seconds c. 5 seconds **d. 25 seconds**

84. What is the weight of the block shown on the scale?



- a. $2\frac{1}{2}$ pounds** b. 4 pounds c. 3 pounds d. $3\frac{1}{2}$ pounds

85. This thermometer shows about



- a. 12° b. 15° c. 10° d. 32°

86. 14 inches is

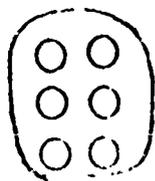
- a. longer than a yard
 b. longer than a foot
 c. shorter than a foot
 d. shorter than a centimeter

87. $5 \text{ feet } 11 \text{ inches}$
 $+ 2 \text{ feet } 9 \text{ inches}$

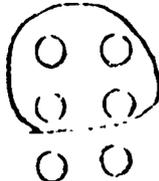
_____ /

- a. _____ = 8 feet 8 inches
 b. _____ = 3 feet 3 inches
 c. _____ = 9 feet
 d. _____ = 6 feet 20 inches

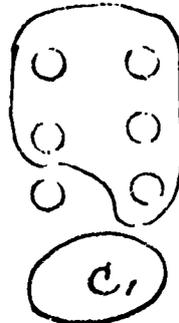
88. Which set of O_c shows a ring drawn around $\frac{5}{6}$ of the set, a, b, c, or d.



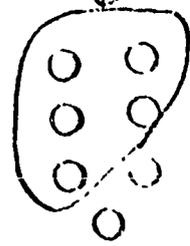
a.



b.



c.



d.

89. 78,341 is:

- a. Seventy-eight thousand, forty-one
- b. Seventy-eight thousand, four hundred thirty-one
- c. Seventy-eight thousand, three hundred forty-one
- d. Seventy thousand, three hundred forty-one

90. $50,000 + 9,000 + 800 + 60 + 2 =$

- a. = 509,862
- b. = 50,090,862
- c. = 59,862
- d. = 5,986

91. The Roman Numeral for 24 is:

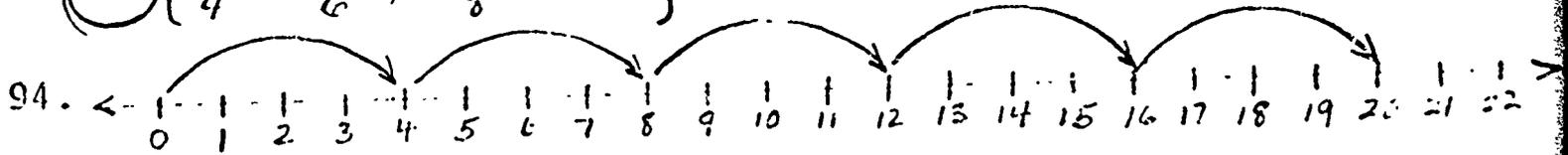
- a. XIV
- b. XXIV
- c. XXVI
- d. VIXXX

92. The Arabic Numeral for XXXVI is:

- a. 36
- b. 34
- c. 63
- d. $\Delta \pi$

93. Which set of fractions is equivalent to $\frac{1}{2}$?

- a. $\left\{ \frac{2}{6}, \frac{3}{9}, \frac{4}{12}, \dots \right\}$
- b. $\left\{ \frac{4}{2}, \frac{6}{3}, \frac{8}{4}, \dots \right\}$
- c. $\left\{ \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \dots \right\}$
- d. $\left\{ \frac{2}{4}, \frac{3}{6}, \frac{4}{8}, \dots \right\}$



What fact does this number line show?

- a. $5 \times 4 = 20$
- b. $2 \times 10 = 20$
- c. $8 + 12 = 20$
- d. $6 \times 4 = 20$

22

95. Which problem shows that $24 \div 8 = 3$?

a.
$$\begin{array}{r} 24 \\ -8 \text{ ①} \\ \hline 16 \\ -8 \text{ ②} \\ \hline 8 \\ -8 \text{ ③} \\ \hline 0 \end{array}$$

b.
$$\begin{array}{r} 24 \\ -3 \text{ ①} \\ \hline 21 \\ -3 \text{ ②} \\ \hline 18 \\ -3 \text{ ③} \\ \hline 15 \end{array}$$

c.
$$\begin{array}{r} 24 \\ -12 \text{ ①} \\ \hline 12 \\ -12 \text{ ②} \\ \hline 0 \end{array}$$

96. Which of the following true sentences does not describe this array?

X X X X
X X X X
X X X X

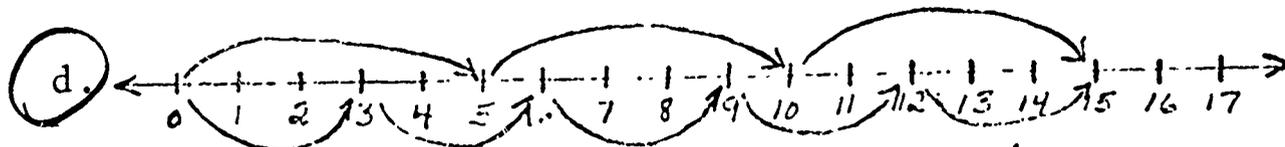
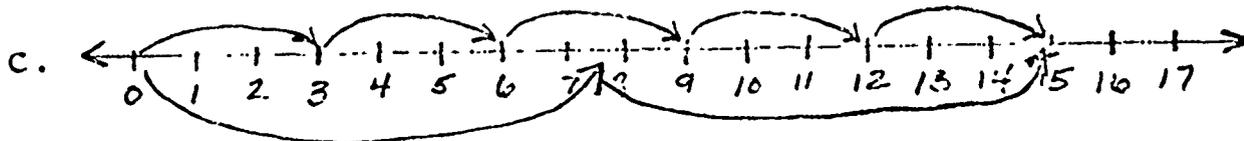
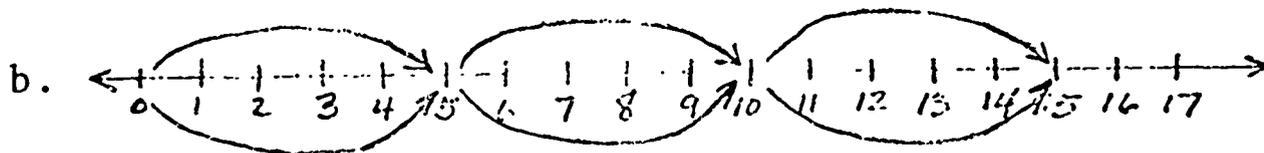
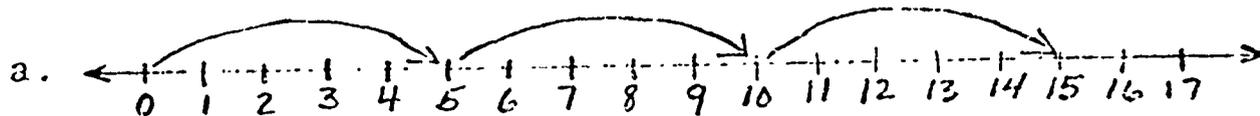
a. $3 \times 4 = 12$

b. $4 \times 3 = 12$

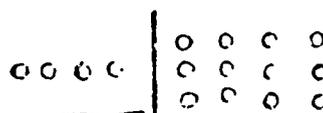
c. $12 \div 3 = 4$

d. $6 \times 2 = 12$

97. Which number line shows that $3 \times 5 = 5 \times 3$?



98. $4 \times (\square) = (4 \times 1) + (4 \times 3)$



From this model, find the value of \square

a. $\square = 5 + 3$

b. $\square = 4 + 3$

c. $\square = 1 + 3$

d. $\square = 4 + 1$

99. $\frac{3}{8} + \frac{7}{8} =$

- a. $1\frac{1}{4}$ b. $\frac{1}{2}$ c. $2\frac{1}{4}$ d. $\frac{8}{16}$

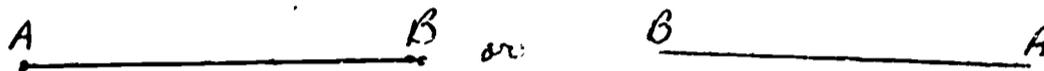
100. $\frac{5}{9} - \frac{2}{9} =$

- a. $\frac{7}{9}$ b. $\frac{1}{3}$ c. $\frac{3}{0}$ d. $\frac{2}{9}$

Part II

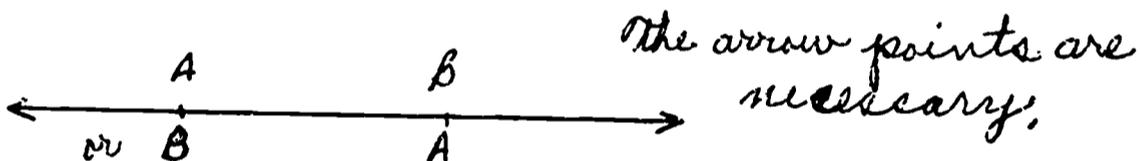
Directions: You are to make several geometric constructions on this page and on the next page. You should use only a straight edge, pencil and in some of them, a compass.

1. Construct a model of a line segment in the space below and label it \overline{AB} .

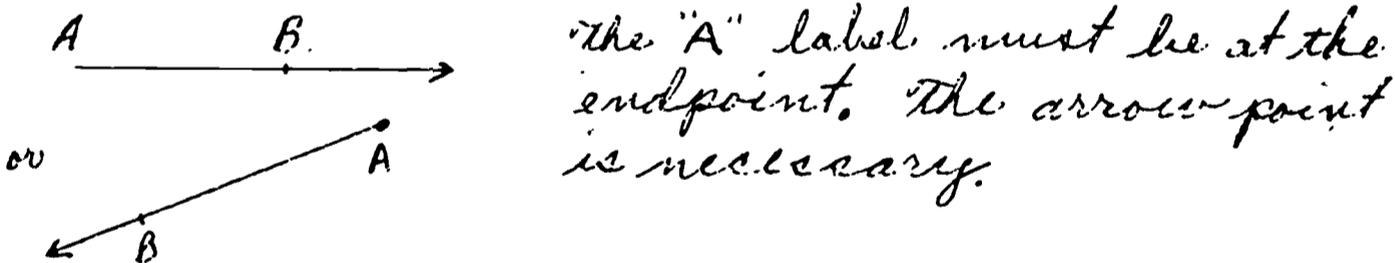


any line segment is acceptable - with or without

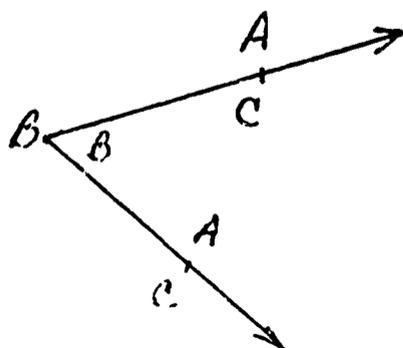
2. Construct a model of a line in the space below and label it \overleftrightarrow{AB} .



3. Construct a model of a ray in the space below and label it \overrightarrow{AB} .

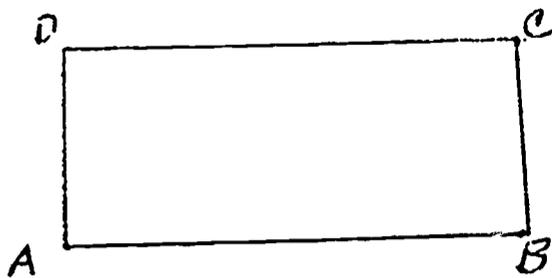


4. Construct a model of an angle in the space below and label it $\angle ABC$



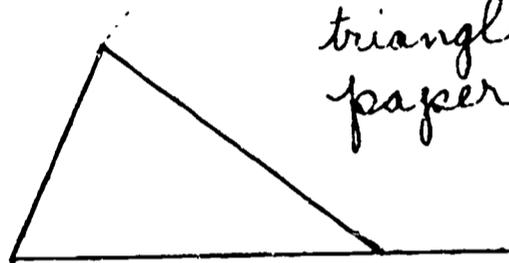
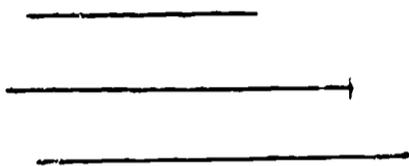
The "B" must be at the vertex of the angle and the rays must have points.

5. Construct a model of a rectangle in the space below and label it \square ABCD



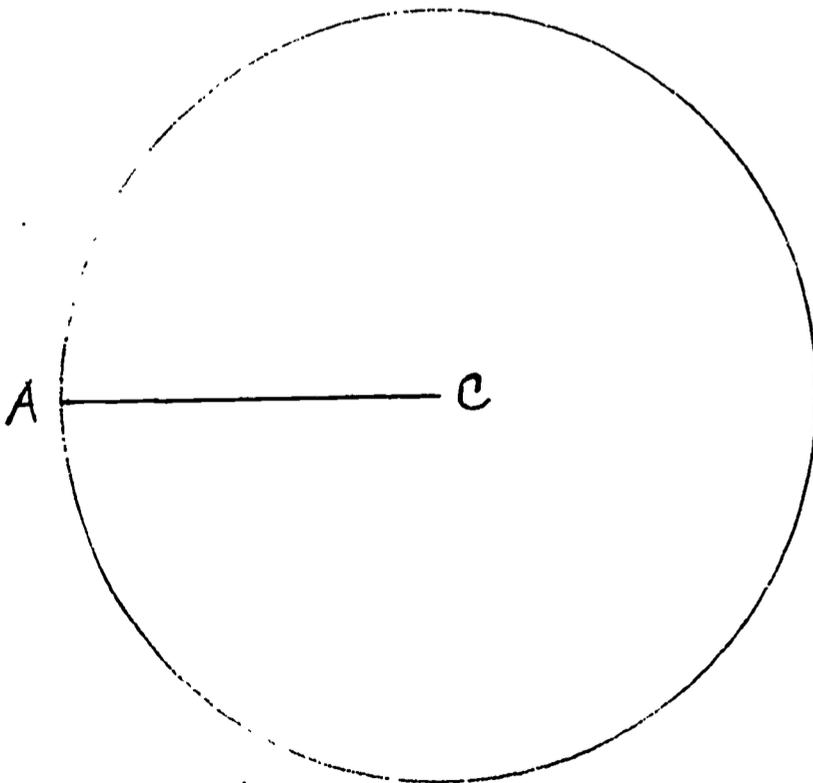
any quadrilateral that has angles "reasonably" close to being right angles is acceptable.

6. Using a compass and a straight edge, construct a triangle having sides the same length as the line segments below. Don't erase your construction marks because they will show whether or not you made the construction correctly.



The orientation of the triangle on the paper is unimportant.

7. Construct a circle with its center at point C and a radius of \overline{AC} .



Part III

ADDITION TEST

Time limit: 2 minutes

$$\begin{array}{r} (1) \quad 5 \\ + 4 \\ \hline 9 \end{array}$$

$$\begin{array}{r} (2) \quad 7 \\ + 6 \\ \hline 13 \end{array}$$

$$\begin{array}{r} (3) \quad 8 \\ + 7 \\ \hline 15 \end{array}$$

$$\begin{array}{r} (4) \quad 3 \\ + 3 \\ \hline 6 \end{array}$$

$$\begin{array}{r} (5) \quad 5 \\ + 2 \\ \hline 7 \end{array}$$

$$\begin{array}{r} (6) \quad 7 \\ + 1 \\ \hline 8 \end{array}$$

$$\begin{array}{r} (7) \quad 5 \\ + 5 \\ \hline 10 \end{array}$$

$$\begin{array}{r} (8) \quad 9 \\ + 4 \\ \hline 13 \end{array}$$

$$\begin{array}{r} (9) \quad 7 \\ + 0 \\ \hline 7 \end{array}$$

$$\begin{array}{r} (10) \quad 6 \\ + 9 \\ \hline 15 \end{array}$$

$$\begin{array}{r} (11) \quad 7 \\ + 4 \\ \hline 11 \end{array}$$

$$\begin{array}{r} (12) \quad 6 \\ + 6 \\ \hline 12 \end{array}$$

$$\begin{array}{r} (13) \quad 8 \\ + 3 \\ \hline 11 \end{array}$$

$$\begin{array}{r} (14) \quad 8 \\ + 8 \\ \hline 16 \end{array}$$

$$\begin{array}{r} (15) \quad 5 \\ + 7 \\ \hline 12 \end{array}$$

$$\begin{array}{r} (16) \quad 6 \\ + 3 \\ \hline 9 \end{array}$$

$$\begin{array}{r} (17) \quad 3 \\ + 5 \\ \hline 8 \end{array}$$

$$\begin{array}{r} (18) \quad 9 \\ + 6 \\ \hline 15 \end{array}$$

$$\begin{array}{r} (19) \quad 7 \\ + 7 \\ \hline 14 \end{array}$$

$$\begin{array}{r} (20) \quad 5 \\ + 9 \\ \hline 14 \end{array}$$

$$\begin{array}{r} (21) \quad 3 \\ + 9 \\ \hline 12 \end{array}$$

$$\begin{array}{r} (22) \quad 4 \\ + 3 \\ \hline 7 \end{array}$$

$$\begin{array}{r} (23) \quad 6 \\ + 8 \\ \hline 14 \end{array}$$

$$\begin{array}{r} (24) \quad 2 \\ + 8 \\ \hline 10 \end{array}$$

SUBTRACTION TEST

Time limit: 2 minutes

$$\begin{array}{r} (25) \quad 11 \\ - \quad 9 \\ \hline 2 \end{array}$$

$$\begin{array}{r} (26) \quad 11 \\ - \quad 5 \\ \hline 6 \end{array}$$

$$\begin{array}{r} (27) \quad 12 \\ - \quad 7 \\ \hline 5 \end{array}$$

$$\begin{array}{r} (28) \quad 14 \\ - \quad 5 \\ \hline 9 \end{array}$$

$$\begin{array}{r} (29) \quad 10 \\ - \quad 8 \\ \hline 2 \end{array}$$

$$\begin{array}{r} (30) \quad 14 \\ - \quad 8 \\ \hline 6 \end{array}$$

$$\begin{array}{r} (31) \quad 12 \\ - \quad 4 \\ \hline 8 \end{array}$$

$$\begin{array}{r} (32) \quad 17 \\ - \quad 8 \\ \hline 9 \end{array}$$

$$\begin{array}{r} (33) \quad 16 \\ - \quad 7 \\ \hline 9 \end{array}$$

$$\begin{array}{r} (34) \quad 6 \\ - \quad 0 \\ \hline 6 \end{array}$$

$$\begin{array}{r} (35) \quad 6 \\ - \quad 4 \\ \hline 2 \end{array}$$

$$\begin{array}{r} (36) \quad 10 \\ - \quad 6 \\ \hline 4 \end{array}$$

$$\begin{array}{r} (37) \quad 18 \\ - \quad 9 \\ \hline 9 \end{array}$$

$$\begin{array}{r} (38) \quad 15 \\ - \quad 8 \\ \hline 7 \end{array}$$

$$\begin{array}{r} (39) \quad 13 \\ - \quad 5 \\ \hline 8 \end{array}$$

$$\begin{array}{r} (40) \quad 10 \\ - \quad 3 \\ \hline 7 \end{array}$$

$$\begin{array}{r} (41) \quad 4 \\ - \quad 2 \\ \hline 2 \end{array}$$

$$\begin{array}{r} (42) \quad 8 \\ - \quad 4 \\ \hline 4 \end{array}$$

$$\begin{array}{r} (43) \quad 9 \\ - \quad 7 \\ \hline 2 \end{array}$$

$$\begin{array}{r} (44) \quad 5 \\ - \quad 3 \\ \hline 2 \end{array}$$

$$\begin{array}{r} (45) \quad 15 \\ - \quad 6 \\ \hline 9 \end{array}$$

$$\begin{array}{r} (46) \quad 3 \\ - \quad 2 \\ \hline 1 \end{array}$$

$$\begin{array}{r} (47) \quad 7 \\ - \quad 4 \\ \hline 3 \end{array}$$

$$\begin{array}{r} (48) \quad 5 \\ - \quad 1 \\ \hline 4 \end{array}$$

MULTIPLICATION TEST

Time limit: 2 minutes

(49)
$$\begin{array}{r} 5 \\ \times 5 \\ \hline 25 \end{array}$$

(50)
$$\begin{array}{r} 9 \\ \times 4 \\ \hline 36 \end{array}$$

(51)
$$\begin{array}{r} 8 \\ \times 6 \\ \hline 48 \end{array}$$

(52)
$$\begin{array}{r} 4 \\ \times 8 \\ \hline 32 \end{array}$$

(53)
$$\begin{array}{r} 6 \\ \times 9 \\ \hline 54 \end{array}$$

(54)
$$\begin{array}{r} 7 \\ \times 4 \\ \hline 28 \end{array}$$

(55)
$$\begin{array}{r} 0 \\ \times 6 \\ \hline 0 \end{array}$$

(56)
$$\begin{array}{r} 2 \\ \times 4 \\ \hline 8 \end{array}$$

(57)
$$\begin{array}{r} 6 \\ \times 6 \\ \hline 36 \end{array}$$

(58)
$$\begin{array}{r} 7 \\ \times 7 \\ \hline 49 \end{array}$$

(59)
$$\begin{array}{r} 5 \\ \times 9 \\ \hline 45 \end{array}$$

(60)
$$\begin{array}{r} 3 \\ \times 7 \\ \hline 21 \end{array}$$

(61)
$$\begin{array}{r} 3 \\ \times 9 \\ \hline 27 \end{array}$$

(62)
$$\begin{array}{r} 4 \\ \times 3 \\ \hline 12 \end{array}$$

(63)
$$\begin{array}{r} 6 \\ \times 8 \\ \hline 48 \end{array}$$

(64)
$$\begin{array}{r} 2 \\ \times 8 \\ \hline 16 \end{array}$$

(65)
$$\begin{array}{r} 7 \\ \times 6 \\ \hline 42 \end{array}$$

(66)
$$\begin{array}{r} 8 \\ \times 7 \\ \hline 56 \end{array}$$

(67)
$$\begin{array}{r} 5 \\ \times 2 \\ \hline 10 \end{array}$$

(68)
$$\begin{array}{r} 4 \\ \times 6 \\ \hline 24 \end{array}$$

(69)
$$\begin{array}{r} 9 \\ \times 9 \\ \hline 81 \end{array}$$

(70)
$$\begin{array}{r} 8 \\ \times 8 \\ \hline 64 \end{array}$$

(71)
$$\begin{array}{r} 3 \\ \times 5 \\ \hline 15 \end{array}$$

(72)
$$\begin{array}{r} 1 \\ \times 4 \\ \hline 4 \end{array}$$



DIVISION TEST

Time limit: 2 minutes

(73) $2 \overline{)4} \quad 2$

(74) $7 \overline{)14} \quad 2$

(75) $2 \overline{)6} \quad 3$

(76) $4 \overline{)20} \quad 5$

(77) $9 \overline{)18} \quad 2$

(78) $6 \overline{)30} \quad 5$

(79) $7 \overline{)35} \quad 5$

(80) $3 \overline{)9} \quad 3$

(81) $7 \overline{)7} \quad 1$

(82) $2 \overline{)16} \quad 8$

(83) $3 \overline{)24} \quad 8$

(84) $6 \overline{)18} \quad 3$

(85) $4 \overline{)16} \quad 4$

(86) $3 \overline{)15} \quad 5$

(87) $1 \overline{)4} \quad 4$

(88) $9 \overline{)54} \quad 6$

(89) $7 \overline{)0} \quad 0$

(90) $4 \overline{)36} \quad 9$

(91) $3 \overline{)24} \quad 8$

(92) $2 \overline{)8} \quad 4$

(93) $6 \overline{)48} \quad 8$

(94) $9 \overline{)45} \quad 5$

(95) $8 \overline{)64} \quad 8$

(96) $5 \overline{)40} \quad 8$

MATHEMATICS CONCEPTS TEST

Basic Test: Level Five

Answer Key and Teachers' Guide

MATHEMATICS CONCEPTS TEST

Basic Test: Level Five
(Grade Five)

ANSWER KEY AND TEACHERS' GUIDE

Description of Test

Items for this mathematics test have been written to assess behavioral objectives proposed by the Mathematics Curriculum Guide, K-6. Multiple choice test items are used where possible. Other behavioral objectives are tested by requiring the student to construct geometric figures. Immediate recall of basic facts is tested by four timed tests. A cross reference of objectives from the Curriculum Guide and items in the test is included with the teachers' guide.

Multiple Choice Test Items

Parts I and II of the test consist of items which can be machine scored directly from the IBM 1230 answer sheets. Students mark answers on answer sheets. The test administrator should inform all students to mark each response carefully with a No. 2 black lead pencil. Answer sheets marked with ink or crayon cannot be machine scored. There should be no extra marks of any type on the answer sheets. In the process of hand scoring, no mark should be placed on the answer sheets until machine scoring has been completed.

Computer Analysis

Computer analysis of test results will develop the following information:

1. Number of items correct, missed, and unanswered for each student.
2. Percentage score for each student.
3. Frequency distribution of percentage scores.
4. Mean score.
5. Standard deviation.
6. Item analysis--biserial correlation.

Identification of Student Answer Sheets

Student name and other information on the upper left hand side of the answer sheet is used for a quick visual identification. However, the computer does not use this data. In the upper right hand section, space is provided to code a student identification number. Data will be processed by the computer in accordance with this number. The recommended procedure for assigning student identification numbers is as follows:

1. Assign each student a different six (6) digit number. If desired the first digits may be zeros, i. e., 000001, 000002, etc. The test results will be recorded numerically by this student number.
2. Record the number vertically in the column of boxes, one digit to a box, starting at the top.
3. Darken in the corresponding digit in the rows to the right of the boxes, one digit to a box.
4. The teacher should keep a record of the number she has assigned to each student so that she can identify the student by that number when the tests are returned.
5. Three answer sheets are required for this test. Care should be taken that each student uses the same number for all answer sheets.
6. Use one answer sheet for Part I (77 items) and another answer sheet for Part II (65 items).
7. Responses to Part III are recorded on the second answer sheet. A third answer sheet must be prepared for Part IV.

Teacher Scored Subtests

Parts III and IV of the test consist of items which must be hand scored by the teacher. After scoring, responses are recorded on answer sheets by the teacher.

Part III consists of eight items. Record the responses for this subtest on the second answer sheet. Mark "a" for a correct response and "b" for an incorrect response. For unanswered questions place no mark on the answer sheet. Mark answers beginning with row 73 in Section B. *Note, Part II consists of 65 items. Therefore, rows 66-72 in Section A of the answer sheet are left blank.

Part IV consists of 104 items. After hand scoring, record the responses on a third answer sheet. Mark "a" for correct, "b" for incorrect and leave blank for unanswered questions.

Time Limits for Tests

This test is designed to be a mastery test. Consequently time limits have been established which will permit over ninety percent of the students to attempt every item on the test. Students should be told that there is no penalty for guessing. It is better to attempt a difficult item than to pass it over.

Administration in three sittings is recommended.

First Sitting	Part I	70 minutes
Second Sitting	Part II	45 minutes
Third Sitting	Part III	20 minutes
Third Sitting	Part IV	11 minutes

Directions to Students

The student is expected to read the test and make a response either on the answer sheet or in the test booklet. No marks should be made in the test booklets for Parts I and II. For Parts III and IV the answer is written in the booklet. Unknown mathematical terms or processes should not be explained to students before or during the test. In Part III students may be informed that a "model" is a "picture." Construction should be done with a straight edge.

Supplies Needed for Testing

1. For Parts I and II each student should have two No. 2 pencils, scratch paper and test and one answer sheet.
2. For Part III students will need a compass and a straight edge, pencils, and one test.
3. For Part IV students will need pencils and copies of the tests.

Norms

District norms will be made available so that student achievement in different schools can be compared. Teachers should be more concerned with the item analysis and cross reference of objectives and test items. A study of test results for any class will provide insights concerning areas where more instruction is needed both for individuals and groups of students.

GRADE FIVE

A CROSS REFERENCE OF OBJECTIVES FROM THE CLARK COUNTY CURRICULUM GUIDE AND ITEMS IN THE MATHEMATICS COVERAGE TEST

CODE: "N" means number strand; "Nu" means numeration strand;
 "O" means operations strand; "G" means geometry strand;
 and, "M" means measurement strand.

An example: M-4 means objective #4 in the measurement strand.

OBJECTIVE # ITEM #

N-1	1
N-2	2
N-3	3
N-4	4
N-5	5
N-6	6
N-7	7
N-8	8
N-9	9
N-10	10
N-11	11
N-12	12
N-13	13

Nu-1	14
Nu-2	15
Nu-3	NC
Nu-4	16
Nu-5	17
Nu-6	18
Nu-7	19
Nu-8	20
Nu-9	21
Nu-10	22
Nu-11	23
Nu-12	24
Nu-13	25
Nu-14	26
Nu-15	27
Nu-16	28
Nu-17	29
Nu-18	30
Nu-19	31
Nu-20	32
Nu-21	33
Nu-22	34
Nu-23	41

OBJECTIVE # ITEM #

O-1&7	35,36
O-2	37
O-4	38
O-5	39
O-6&7	40,42
O-7&23	43
O-7	44
O-8	45
O-9	46
O-10	47
O-12	48
O-15	49
O-13	50
O-14	51
O-16	52
O-17	53
O-18	54
O-19	55
O-20	56
O-21	57
O-22	NC
O-23	58
O-24	59
O-25	60
O-26	61
O-27	62,63
O-28	64
O-29	NC
O-30	65
O-31	66
O-32	67
O-33	NC
O-34	68
O-35	69
O-36	70
O-37	71,72
O-38	73
O-39	74

O-40	75
O-41	76,77

PART II

OBJECTIVE # ITEM #

M-1	1-7
M-2&13	9
M-3	10
M-15	10-13
M-5	14
M-6	NC
M-7	15,16
M-8,9,3	17
M-10	18
M-11	19
M-12&4	20
M-13	21
M-14	22
M-15	23
M-16	24,25

G-1	26,27
G-2	28-30
G-1	31,32
G-13	33
G-2	34-42
G-2&3	43-47
G-4	48-55
G-5	56
G-6	57,58
G-7	59
G-8	60
G-9	61
G-11	62
G-12	63,64
G-10	65

OBJECTIVE # ITEM #

G-14	1,2
G-13,14,15	3-5
G-16	6,7
G-17	8

NC means not covered

Johnson **HARRY J**
 SIGNATURE
Mrs R. Roberts
 INSTRUCTOR
AURA Deering **215**
 COURSE NO SECTION NO
Math **1-16-69**
 SCHOOL NAME SCHOOL NO
Level 5 Part 4
 NAME OF TEST DATE

BLACKEN APPROPRIATE DIGIT HERE

0	1	2	3	4	5	6	7	8	9	
5	0	1	2	3	4	5	6	7	8	9
1	0	1	2	3	4	5	6	7	8	9
7	0	1	2	3	4	5	6	7	8	9
6	0	1	2	3	4	5	6	7	8	9
2	0	1	2	3	4	5	6	7	8	9

INSTRUCTIONS Please Read Carefully
 1. Erase completely any answer you change.
 2. Do not write in margins.
 3. Use No. 2 pencil and fill box.
 4. Make marks heavy and black.
 5. For (T) True and (F) False questions use (1) for true and (2) for false.

SECTION A

1	a	b	c	d	e	19	a	b	c	d	e	37	a	b	c	d	e	55	a	b	c	d	e
2	a	b	c	d	e	20	a	b	c	d	e	38	a	b	c	d	e	56	a	b	c	d	e
3	a	b	c	d	e	21	a	b	c	d	e	39	a	b	c	d	e	57	a	b	c	d	e
4	a	b	c	d	e	22	a	b	c	d	e	40	a	b	c	d	e	58	a	b	c	d	e
5	a	b	c	d	e	23	a	b	c	d	e	41	a	b	c	d	e	59	a	b	c	d	e
6	a	b	c	d	e	24	a	b	c	d	e	42	a	b	c	d	e	60	a	b	c	d	e
7	a	b	c	d	e	25	a	b	c	d	e	43	a	b	c	d	e	61	a	b	c	d	e
8	a	b	c	d	e	26	a	b	c	d	e	44	a	b	c	d	e	62	a	b	c	d	e
9	a	b	c	d	e	27	a	b	c	d	e	45	a	b	c	d	e	63	a	b	c	d	e
10	a	b	c	d	e	28	a	b	c	d	e	46	a	b	c	d	e	64	a	b	c	d	e
11	a	b	c	d	e	29	a	b	c	d	e	47	a	b	c	d	e	65	a	b	c	d	e
12	a	b	c	d	e	30	a	b	c	d	e	48	a	b	c	d	e	66	a	b	c	d	e
13	a	b	c	d	e	31	a	b	c	d	e	49	a	b	c	d	e	67	a	b	c	d	e
14	a	b	c	d	e	32	a	b	c	d	e	50	a	b	c	d	e	68	a	b	c	d	e
15	a	b	c	d	e	33	a	b	c	d	e	51	a	b	c	d	e	69	a	b	c	d	e
16	a	b	c	d	e	34	a	b	c	d	e	52	a	b	c	d	e	70	a	b	c	d	e
17	a	b	c	d	e	35	a	b	c	d	e	53	a	b	c	d	e	71	a	b	c	d	e
18	a	b	c	d	e	36	a	b	c	d	e	54	a	b	c	d	e	72	a	b	c	d	e

Sample

SECTION B

73	a	b	c	d	e	90	a	b	c	d	e	f	6	g	7	h	8	9	10
74	a	b	c	d	e	91	a	b	c	d	e	f	6	g	7	h	8	9	10
75	a	b	c	d	e	92	a	b	c	d	e	f	6	g	7	h	8	9	10
76	a	b	c	d	e	93	a	b	c	d	e	f	6	g	7	h	8	9	10
77	a	b	c	d	e	94	a	b	c	d	e	f	6	g	7	h	8	9	10
78	a	b	c	d	e	95	a	b	c	d	e	f	6	g	7	h	8	9	10
79	a	b	c	d	e	96	a	b	c	d	e	f	6	g	7	h	8	9	10
80	a	b	c	d	e	97	a	b	c	d	e	f	6	g	7	h	8	9	10
81	a	b	c	d	e	98	a	b	c	d	e	f	6	g	7	h	8	9	10
82	a	b	c	d	e	99	a	b	c	d	e	f	6	g	7	h	8	9	10
83	a	b	c	d	e	100	a	b	c	d	e	f	6	g	7	h	8	9	10
84	a	b	c	d	e	101	a	b	c	d	e	f	6	g	7	h	8	9	10
85	a	b	c	d	e	102	a	b	c	d	e	f	6	g	7	h	8	9	10
86	a	b	c	d	e	103	a	b	c	d	e	f	6	g	7	h	8	9	10
87	a	b	c	d	e	104	a	b	c	d	e	f	6	g	7	h	8	9	10
88	a	b	c	d	e	105	a	b	c	d	e	f	6	g	7	h	8	9	10
89	a	b	c	d	e														



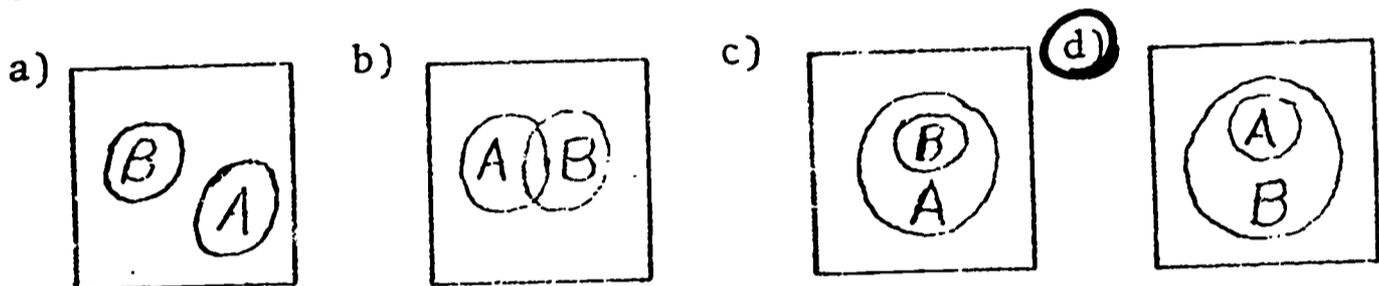
MATHEMATICS CONCEPTS TESTS

Basic Test: Level Five

Answer Key

Part I

1. Which of the Venn diagrams below shows the relationship of whole numbers to rational numbers?
 Set A = the whole numbers
 Set B = the rational numbers



2. Which of the following sets is infinite?

- a) The set of all fords.
 b) The set of all counting numbers.
 c) The set of all 5th grade boys.
 d) The set of all two-headed dogs.

3. The cardinal number of this set is

$$\{\triangle, \square, 4, 6, \circ, 10\}$$

- a) 5 b) 10 c) 7 d) 6

4. Which pair of numerals come before and after 16,710?

- a) 16,709, _____, 16,711
 b) 16,700, _____, 16,702
 c) 16,712, _____, 16,713
 d) 16,700, _____, 16,720

5. $R = \{12, 9, 8, 7, 25, 2, 16, 15\}$

The subset of odd numbers in set R is

- a) $\{12, 8, 2, 16\}$
 b) $\{9, 7, 25, 15\}$
 c) $\{12, 9, 8, 16, 15\}$
 d) $\{9, 8, 7, 25, 2\}$

6. Having a million dollars in one bank is the same as having

- a) A thousand dollars in each of a thousand banks.
 b) A hundred dollars in each of a thousand banks.
 c) A thousand dollars in each of a hundred banks.
 d) A hundred dollars in each of a hundred banks.

7. Which number is a prime number?

- a) 26 b) 39 c) 47 d) 49

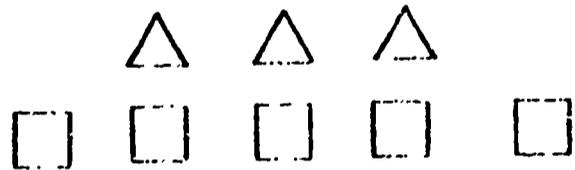
8. Which set of numerals is arranged from greatest to least?

- a) $\{0, 5, 65, 900, 1000\}$
 b) $\{1600, 1400, 900, 1010, 867\}$
 c) $\{2200, 2165, 2075, 1967, 1821\}$
 d) $\{5, 10, 20, 70, 90\}$

9. Which sign makes the statement true? $20 \div 5$ $25 \div 5$

- a) $<$ b) $>$ c) $=$ d) \div

10. What is the ratio of squares to triangles?



- a) $\frac{3}{4}$ b) $\frac{5}{3}$ c) $\frac{4}{3}$ d) $\frac{3}{5}$

11. Give the whole number for this set of equivalent fractions.

$$\left\{ \frac{8}{1}, \frac{16}{2}, \frac{32}{4}, \frac{40}{5}, \dots \right\}$$

- a) 5 b) 8 c) 16 d) 4

12. A class is composed of 10 girls and 20 boys. Which of the following statements is false?

- a) The ratio of boys to girls is 2 to 1.
b) $\frac{2}{3}$ of the class is boys.
c) The ratio of girls to boys can be written 1:2.
 d) $\frac{3}{2}$ of the class is girls.



The arrow indicates what number on the number line?

- a) -1 b) +2 c) -2 d) +3

14. Which of the following is NOT a name for the number $6\frac{7}{10}$?

- a) $(2 + 3 + .7)$ b) $\frac{67}{10}$ c) 6.7 d) $(6 + .7)$

15. Another name for the numeral three million, nine thousand, five is

- a) 3,900,500 b) 390,005 c) 3,009,005 d) 3,090,050

16. Another name for the numeral 467,304 is

- a) four hundred sixty-seven thousand, three hundred four.
b) four million, sixty-seven thousand, three hundred four.
c) forty-six thousand, seven hundred thirty-four.
d) four hundred sixty-seven thousand, thirty-four.

17. In the numeral 1,398,671 the digit nine is in the

- a) hundreds' place
b) millions' place
c) hundred thousands' place
 d) ten thousands' place

18. In the numeral below, the digits in period 3 tell the number of

6 7 1, 4 9 2, 8 7 1
Period 3 Period 2 Period 1

- a) billions
- b) millions
- c) thousands
- d) ones
19. Which is another name for the numeral 298,461?
- a) $(2 \times 100,000) + (9 \times 10,000) + (8 \times 1,000) + (4 \times 100) + (6 \times 10) + (1 \times 1)$
- b) $(2 \times 10,000) + (9 \times 1,000) + (8 \times 100) + (4 \times 10) + (1 \times 1)$
- c) $(2 \times 100,000) + (7 \times 10,000) + (8 \times 1,000) + (4 \times 100) + (6 \times 10) + (1 \times 1)$
- d) $(2 \times 1,000,000) + (9 \times 100,000) + (8 \times 10,000) + (4 \times 1,000) + (6 \times 100) + (1 \times 10)$
20. Which of the following is another name for the numeral 473,601,986?
- a) $(473 \times 100,000) + (601 \times 100) + (986 \times 10)$
- b) $(473 \times 10,000,000) + (601 \times 10,000) + (986 \times 1)$
- c) $(473 \times 1,000,000) + (601 \times 1,000) + (986 \times 1)$
- d) $(473 \times 10,000) + (601 \times 1,000) + (986 \times 10)$
21. Which of the following shows the number 60 as a product of prime numbers?
- a) $2 \times 2 \times 3 \times 5$
- b) $4 \times 5 \times 3$
- c) $2 \times 2 \times 3 \times 3 \times 5$
- d) $2 \times 6 \times 5$

22. The Roman numeral name for the base ten number 264 is:
- a) LXIV
 - b) CCLXIV
 - c) CLXIV
 - d) CCLXVI
23. The base ten name for the Roman numeral CXI is:
- a) 61
 - b) 101
 - c) 111
 - d) 109
24. Given a Roman numeral XXX and a base ten numeral 333:
- a) $XXX = 10 + 10 + 10$
 - b) $333 = 3 + 3 + 3$
 - c) Each "X" has a different value depending on its place in the numeral
 - d) The two numerals name the same number
25. The base five numeral for the following set of dots is:
-
- a) 24_{five}
 - b) 14_{five}
 - c) 33_5
 - d) 30_{five}
26. This model  shows:
- a) $\frac{6}{7}$
 - b) $\frac{7}{6}$
 - c) $\frac{6}{5}$
 - d) $\frac{4}{7}$
27. In the fraction $\frac{3}{5}$
- a) 3 is the denominator
 - b) 5 is the addend
 - c) 5 is the numerator
 - d) 5 is the denominator

28. Which is not another name for the fraction $\frac{7}{8}$?
- a) $\frac{14}{16}$ b) $\frac{23}{24}$ c) $\frac{28}{32}$ d) $\frac{35}{40}$
29. The simplest form (lowest terms) of the fraction $\frac{18}{24}$ is:
- a) $\frac{9}{12}$ b) $\frac{1}{2}$ c) $\frac{2}{3}$ d) $\frac{3}{4}$
30. The missing numerator in the following arithmetic sentence $\frac{4}{9} = \frac{?}{18} = \frac{32}{72}$ is:
- a) 8 b) 16 c) 12 d) 24
31. Another name for the fraction $\frac{2.5}{7}$ is:
- a) $\frac{13}{3}$ b) $3\frac{4}{7}$ c) $4\frac{3}{7}$ d) $20\frac{5}{7}$
32. The decimal numeral for the fraction $8\frac{14}{1000}$ is:
- a) .814 b) 8.14 c) 8.014 d) 8.0014
33. The expanded numeral for the numeral 23.74 is:
- a) $(2 \times 10) + (3 \times 1) + (7 \times \frac{1}{10}) + (4 \times \frac{1}{100})$
- b) $(23 \times 10) + (7 \times 1) + (4 \times \frac{1}{10})$
- c) $(2 \times 10) + (3 \times 1) + (7 \times \frac{1}{100}) + (4 \times \frac{1}{10})$
- d) $(2 \times 1000) + (3 \times 100) + (7 \times 10) + (4 \times 1)$
34. Which answer lists the correct order of the types of numerals in the following set?
- $\left\{ \frac{1}{3}, 2\frac{1}{2}, .23 \right\}$
- a) decimal fraction, common fraction, mixed numeral
- b) common fraction, decimal fraction, mixed numeral
- c) common fraction, mixed numeral, decimal fraction
- d) mixed numeral, common fraction, decimal fraction

35. If $\square + 567 = 1142$, then $\square =$
 a) 675 b) 1709 c) 685 **d) 575**

36. If $\square - 2456 = 3798$, then $\square =$
 a) 1342 **b) 6254** c) 5144 d) 5257

37.
$$\begin{array}{r} 3095 \\ -1843 \\ \hline 1252 \end{array}$$
 Which of the items below should be used to check the answer to this problem?

a)
$$\begin{array}{r} 1843 \\ -1252 \\ \hline \end{array}$$
 **b)
$$\begin{array}{r} 1843 \\ +1252 \\ \hline \end{array}$$** c)
$$\begin{array}{r} 3095 \\ +1252 \\ \hline \end{array}$$
 d)
$$\begin{array}{r} 1252 \\ -1843 \\ \hline \end{array}$$

38. Which arrangement seems easiest for adding these numbers?

- a) $(17 + 3) + (6 + 4)$**
 b) $(17 + 6) + (3 + 4)$
 c) $(6 + 3) + (17 + 4)$
 d) $(4 + 3) + (6 + 17)$

39. $4635 + \square = 4635 - \square$ To make this statement true, \square can be:

- a) any number b) 1 only c) 4635 **d) 0 only**

40.
$$\begin{array}{r} 638,245,079 \\ + 25,346,942 \\ \hline \end{array}$$

- a) 663,592,021**
 b) 612,898,137
 c) 653,581,911
 d) 653,592,121

41. The numeral 14.36 rounded to the nearest tenth is

- a) 15. b) 14.35 c) 14.3 **d) 14.4**

$$42. \quad \begin{array}{r} 900,389,400 \\ - 9,230,099 \\ \hline \end{array}$$

- a) 909,619,499
- b) 901,159,301
- c) 891,159,301
- d) 801,159,311

43. $246 \square 29 = 275$ What symbol placed in the box would make this statement true?

- a) +
- b) -
- c) x
- d) \div

44. $1832 \square 1802 = 30$ What symbol placed in the box would make this statement true?

- a) +
- b) -
- c) x
- d) \div

45. $\bigcirc \times \square = \triangle$ Which of the sentences below is not related to this multiplication equation?

- a) $\square \times \bigcirc = \triangle$
- b) $\triangle \div \square = \bigcirc$
- c) $\square \div \bigcirc = \triangle$
- d) $\triangle \div \bigcirc = \square$

46. Which equation has the same solution as $\square \times 48 = 240$

- a) $240 - 48 = \square$
- b) $240 \times 48 = \square$
- c) $240 \div 48 = \square$
- d) $48 \div 240 = \square$

47. $\begin{array}{r} 416 \\ 9 \overline{) 3744} \end{array}$ Which of the items below should be used to check the answer to this problem?

- a) $\begin{array}{r} 416 \\ \times 9 \\ \hline \end{array}$
- b) $\begin{array}{r} 416 \\ + 9 \\ \hline \end{array}$
- c) $\begin{array}{r} 3744 \\ + 416 \\ \hline \end{array}$
- d) $\begin{array}{r} 3744 \\ - 416 \\ \hline \end{array}$

48. Which form makes $1463 \times 468 = \square$ easiest to compute?

a)
$$\begin{array}{r} 468 \\ \times 1463 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 1463 \\ \times 468 \\ \hline \end{array}$$

49. $6000 \times 50 =$

- a) 3000 b) 30,000 c) 300,000 d) 3,000,000

50.
$$\begin{array}{r} 218 \\ \times 306 \\ \hline 1308 \\ 65400 \\ \hline 66,708 \end{array}$$

Which of the items below could be used to check the answer to this problem?

a)
$$\begin{array}{r} 306 \\ \times 218 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 306 \\ - 218 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 65,400 \\ + 306 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 66,708 \\ - 65,400 \\ \hline \end{array}$$

51. Which grouping seems to make this problem easiest to solve?

a) $67 \times (25 \times 4) =$

b) $(67 \times 25) \times 4 =$

c) $(67 \times 4) \times 25 =$

d) $(4 \times 67) \times 25 =$

52. $376 \div \square = 376 \times \square$ To make this statement true, \square can be

- a) any number b) 1 only c) 0 only d) 376

53. $0 = 4890 \times \square$

- a) $\square = 4890$ b) $\square = 48,900$ c) $\square = 0$ d) $\square = 10$

54. Which problem cannot be solved?

- a) $0 \div 4$ b) $4 \div 4$ c) $4 \div 0$ d) $1 \div 1$

55. $37 \times 23 = (37 \times \square) + (37 \times 3)$

- a) $\square = 10$ b) $\square = 3$ c) $\square = 20$ d) $\square = 23$

56.
$$\begin{array}{r} 9073 \\ \times 286 \\ \hline \end{array}$$

- a) 2,594,878
b) 9359
c) 2,579,268
d) 145,168

57. $46 \overline{) 36,836}$

- a) 801 b) 799 r72 c) 800 r36 d) 900 r36

58. $23 \square 23 = 529$ What symbol placed in the box would make this statement true?

- a) + b) - c) \times d) \div

59. Find the average of this set of numbers. $\{68, 82, 93\}$

- a) 81 b) 79 c) 82 d) 88

60. Give the greatest common factor of this set of numbers.

$$\{3, 12, 18\}$$

- a) 6 b) 3 c) 36 d) 24

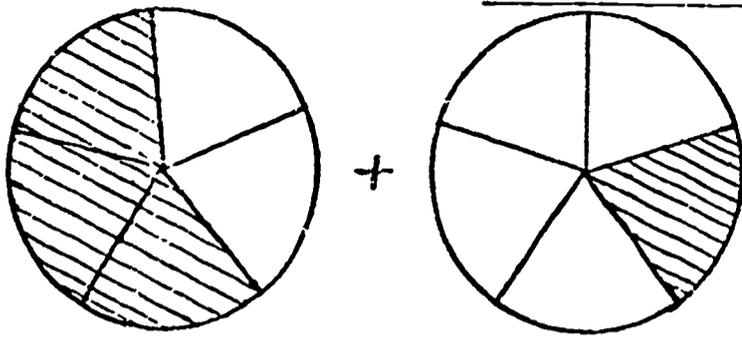
61. Give the least common multiple of this set of numbers.

$$\{8, 12\}$$

- a) 2 b) 8 c) 12 d) 24

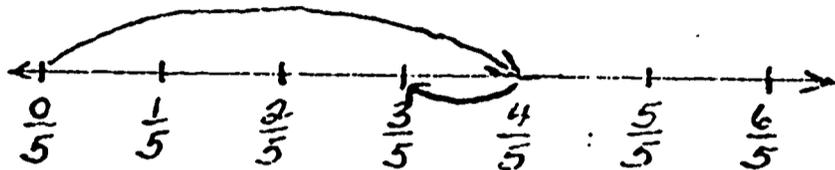
62. The shaded part of these models show that

- a) $\frac{3}{4} + \frac{1}{4} = \frac{4}{8}$
- b) $\frac{3}{5} + \frac{1}{5} = \frac{4}{10}$
- c) $\frac{3}{5} + \frac{1}{5} = \frac{4}{5}$
- d) $\frac{3}{5} + \frac{4}{5} = 1\frac{2}{5}$



63. This number line shows that:

- a) $\frac{0}{5} + \frac{4}{5} = \frac{3}{5}$
- b) $\frac{4}{5} + \frac{3}{5} = \frac{6}{5}$
- c) $\frac{4}{5} - \frac{3}{5} = \frac{1}{5}$
- d) $\frac{4}{5} - \frac{1}{5} = \frac{3}{5}$



64. Which equation has the same solution as $\square + \frac{3}{4} = \frac{7}{8}$

- a) $\frac{3}{4} + \frac{7}{8} = \square$
- b) $\frac{7}{8} - \frac{3}{4} = \square$
- c) $\frac{3}{4} - \frac{7}{8} = \square$
- d) $\frac{7}{8} + \frac{3}{4} = \square$

65. $\frac{1}{2} + \square = \square + \frac{1}{2}$, is true for \square equal to

- a) any number
- b) 1 only
- c) 0 only
- d) never true

66. $(\frac{1}{4} + \square) + \frac{1}{2} = \frac{1}{4} + (\square + \frac{1}{2})$ is true for \square equal to:

- a) any number
- b) 1 only
- c) 0 only
- d) never true

67. Which grouping seems to make this problem easiest to solve?

- a) $(\frac{3}{4} + \frac{1}{8}) + \frac{1}{4} =$
- b) $\frac{3}{4} + (\frac{1}{8} + \frac{1}{4}) =$
- c) $(\frac{1}{8} + \frac{3}{4}) + \frac{1}{4} =$
- d) $\frac{1}{8} + (\frac{3}{4} + \frac{1}{4}) =$

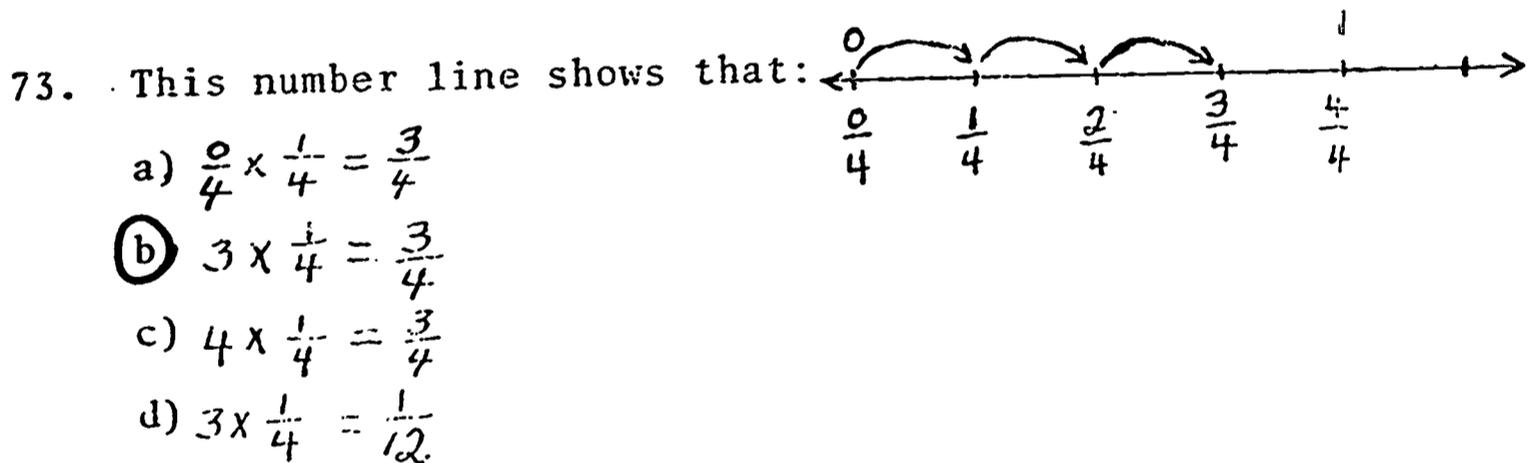
68. $\frac{14}{15} - \frac{6}{15} =$
 a) $1\frac{5}{15}$ b) $\frac{20}{15}$ c) $\frac{3}{5}$ **d) $\frac{8}{15}$**

69. $\frac{3}{4} + \frac{1}{6} =$
a) $\frac{11}{12}$ b) $\frac{4}{10}$ c) $\frac{4}{12}$ d) $\frac{4}{6}$

70. $12\frac{13}{18}$
 $+ 7\frac{1}{2}$
 a) $19\frac{14}{18}$ **b) $20\frac{2}{9}$** c) $19\frac{7}{9}$ d) $20\frac{14}{20}$

71. $26.4 + 3.44 =$
 a) 26.744 b) 60.8 **c) 29.84** d) 30.04

72. $\$5 - \$2.05 =$
 a) $\$3.95$ b) $\$3.05$ **c) $\$2.95$** d) $\$2$



74. Which equation has the same solution as $\frac{5}{48} \div \frac{1}{8} = \square$

a) $\square + \frac{1}{8} = \frac{5}{48}$
 b) $\frac{1}{8} \div \frac{5}{48} = \square$
 c) $\square \div \frac{5}{48} = \frac{1}{8}$
d) $\square \times \frac{1}{8} = \frac{5}{48}$

75. $\frac{2}{3} \times \frac{4}{5} =$

a) $\frac{6}{8}$

b) $\frac{6}{15}$

c) $\frac{8}{15}$

d) $\frac{16}{15}$

76.
$$\begin{array}{r} \$6.28 \\ \times \quad 36 \\ \hline \end{array}$$

a) \$22.60

b) \$226.08

c) \$222.68

d) \$188.40

77. $47 \overline{) \$9.87}$

a) \$.21

b) \$2.10

c) \$2.01

d) \$.27

Part II

1. Mary bought material for a new dress by the _____.
a) pound b) miles c) ounce d) yard
2. The distance from New York to Las Vegas is measured in _____.
a) pounds b) miles c) ounces d) yards
3. Perfume is sold by the _____.
a) pound b) miles c) ounce d) yard
4. The butcher sells meat by the _____.
 a) pound b) miles c) ounce d) yard
5. We measure speed with a _____.
a) ruler b) speedometer c) miles d) clock
6. Time is measured with a _____.
a) ruler b) speedometer c) miles d) clock
7. The area of your desk can be measured in _____.
a) feet b) inches c) square inches d) cubic inches
8. Mr. Smith drives his car at an average speed of 40 M.P.H.
How far does he go in 5 hours?
a) 30 miles b) 141 miles c) 200 miles d) 8 miles
9. It is colder when the temperature is _____.
 a) 30° F. b) 30° C.

10. To the nearest pound 19 lbs, 7 oz. is _____.

- a) 19 lbs b) 20 lbs c) 26 lbs

11. 18 inches is:

- a) shorter than $\frac{1}{2}$ a yard
b) longer than a yard
c) $\frac{1}{4}$ of a yard
 d) $\frac{1}{2}$ of a yard

12. A boy 49 inches tall is:

- a) shorter than a yardstick
b) about one rod
 c) close to four feet
d) too tall to measure

15. A meter stick is:

- a) longer than a yard stick
b) about 12 inches long
c) 4 millimeters
d) $\frac{1}{4}$ of a foot

14. Grandfather's garden is 60 feet long and 28 feet wide.
The perimeter of his garden is

- a) 50 feet
 b) 176 feet
c) 99 feet
d) 1680 square feet

28 ft.

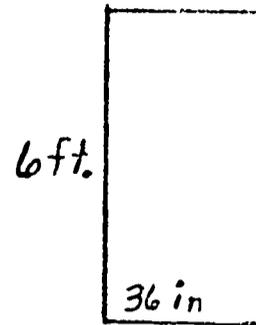


15. The area of grandfather's garden is (See item #14 above)

- a) 216 square ft. b) 680 square ft. c) 1680 square feet

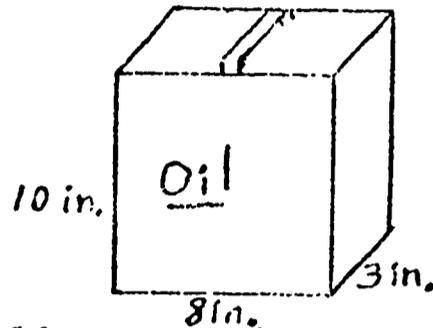
16. The rectangle has a base of 36 inches and an altitude of 6 feet. What is the area?

- a) 84 square feet
- b) 18 square feet
- c) 216 square feet



17. A gallon is 231 cubic inches. The container shown here will _____.

- a) hold more than a gallon
- b) hold less than a gallon
- c) hold exactly one gallon



18. If the time in Las Vegas is 10 a.m., what time is it in New York?

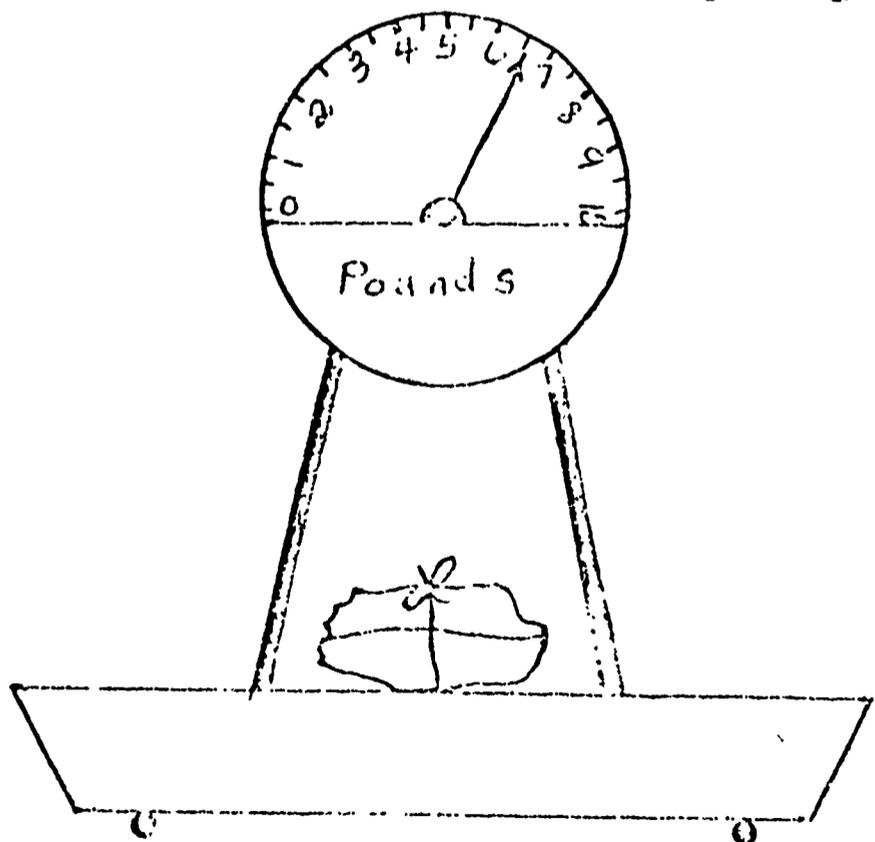
- a) 1 a.m.
- b) 1 p.m.
- c) 7 a.m.
- d) 7 p.m.

19. The Brooklyn Bridge was completed in 1883. What century was this?

- a) 17th Century
- b) 18th Century
- c) 19th Century

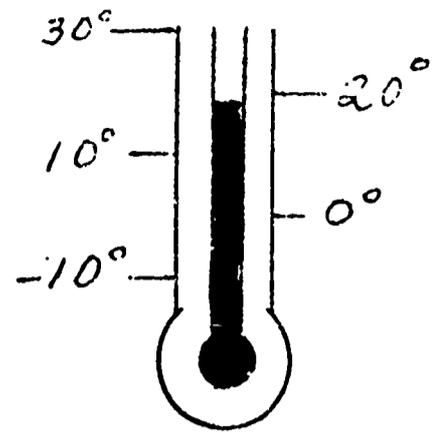
20. To the nearest pound what is the weight of the package on the scale?

- a) 7 1/2 lbs
- b) 7 lbs.
- c) 6 1/2 lbs.
- d) 6 lbs.

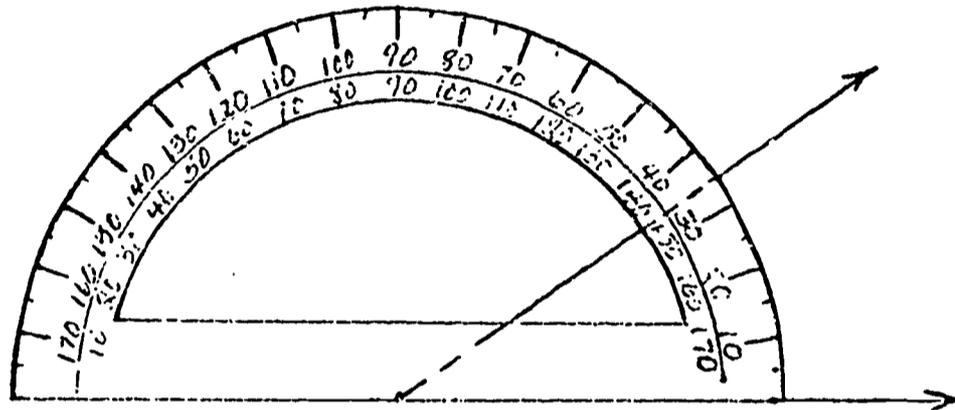


21. To the nearest 5 degrees, the thermometer shows what temperature?

- a) 20°
- b) 10°
- c) 25°
- d) 15°



22. The picture shows a protractor that is placed on an angle. How many degrees does the angle measure?



- a) 45
- b) 35
- c) 155
- d) 145

23. 100 inches is equal to _____.

- a) 6 feet
- b) 3 yards
- c) 2 yards, 2 feet, 4 inches
- d) 4 yards, 4 inches

24. 3 hours 40 minutes 50 seconds
+ 2 hours 20 minutes 40 seconds

- a) 6 hr. 10 min. 20 sec.
- b) 6 hr. 1 min. 10 sec.
- c) 5 hr. 61 min.
- d) 6 hr. 10 min. 10 sec.

25.
$$\begin{array}{r} 2 \text{ gallons } 3 \text{ quarts} \\ \times \qquad \qquad \qquad 5 \\ \hline \end{array}$$

- a) 15 gallons
- b) 17 gallons 1 quart
- c) 11 gallons 5 quarts
- d) 13 gallons 3 quarts

GEOMETRY

Mr. Point! Poor Point! He has a place to be. But no size and shape. There's no point to see.

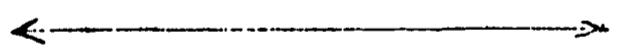
26. Which of the following sentences is true?

- a) A point is a mark made by a pencil.
- b) A point is a location.
- c) You can see a point.
- d) A point is a very small mark.

27. Every Geometric figure is a set of

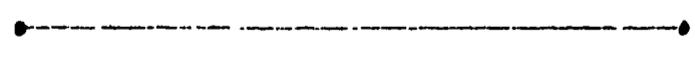
- a) circles
- b) points
- c) triangles

28. This is a drawing of a



- a) ray
- b) line segment
- c) line

29. This is a drawing of a



- a) point
- b) line segment
- c) line

30. This is the correct way to draw a picture of a



- a) line segment b) ray c) line

31. The set of points contained in two rays with a common endpoint is

- a) a circle b) a triangle c) an angle

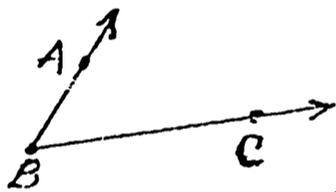
32. The common endpoint of the two rays forming an angle is the

- a) center b) vertex c) side

33. When angles have equal measure they are

- a) infinite b) parallel c) congruent

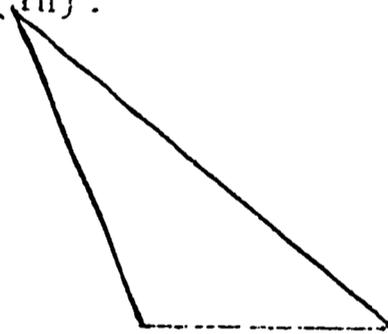
34. In this drawing of an angle the vertex is at point



- a) A b) B c) C

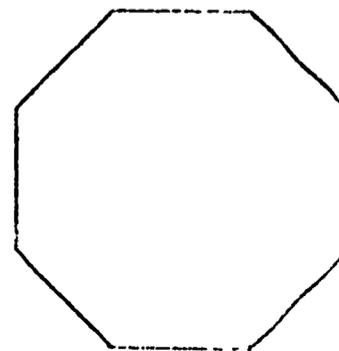
35. The figure on the right is a (an):

- a) rhombus
 b) triangle
c) octagon
d) hexagon



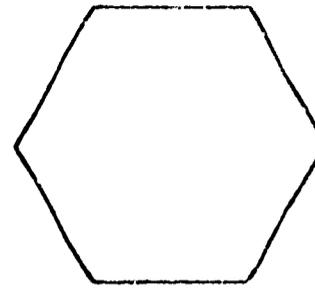
36. The figure on the right is a (an):

- a) rhombus
b) triangle
 c) octagon
d) hexagon



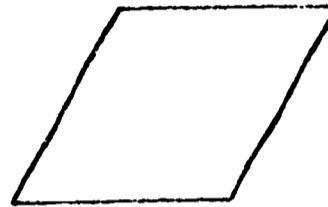
37. The figure on the right is a (an):

- a) rhombus
- b) triangle
- c) octagon
- d) hexagon



38. The figure on the right is a (an):

- a) rhombus
- b) triangle
- c) octagon
- d) hexagon



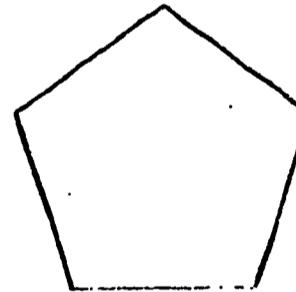
39. The figure on the right is a (an):

- a) Octagon
- b) rectangle
- c) hexagon
- d) pentagon



40. The figure on the right is a (an):

- a) octagon
- b) rectangle
- c) hexagon
- d) pentagon



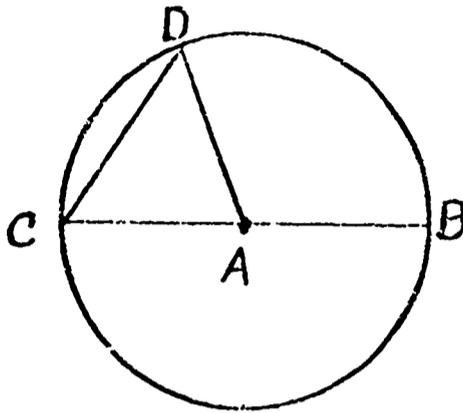
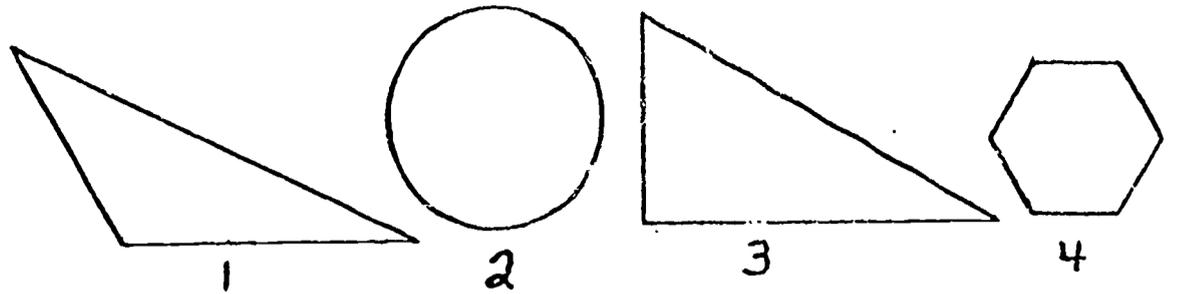
41. The figure on the right is a (an):

- a) octagon
- b) rectangle
- c) hexagon
- d) parallelogram



42. Which one of the four figures is a right triangle?

- a) 1
- b) 2
- c) 3
- d) 4



43. In the circle above point A is the _____.

- a) chord
- b) radius
- c) center

44. In the circle above \overline{AD} is a _____.

- a) radius
- b) diagonal
- c) diameter

45. In the circle above \overline{BC} is _____.

- a) the center
- b) a radius
- c) a diameter

46. In the circle above \overline{CD} is a _____.

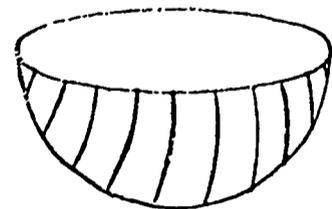
- a) chord
- b) diameter
- c) radius

47. If you laid a piece of string along the circle above, the length of the string would measure the _____ of the circle.

- a) area
- b) diameter
- c) circumference

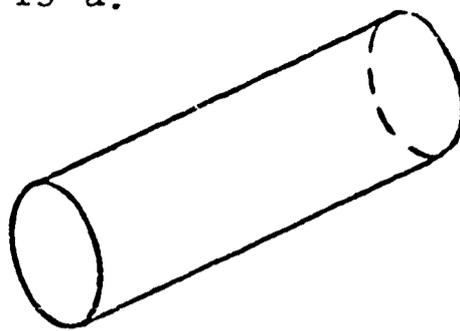
48. The figure on the right is a:

- a) cylinder
- b) cube
- c) cone
- d) hemisphere



49. The figure at the right is a:

- a) cylinder
- b) cube
- c) cone
- d) hemisphere



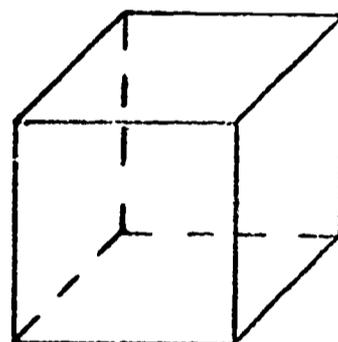
50. The figure on the right is a:

- a) cylinder
- b) cube
- c) cone
- d) hemisphere



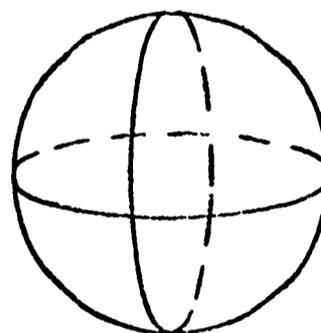
51. The figure on the right is a:

- a) cylinder
- b) cube
- c) cone
- d) hemisphere



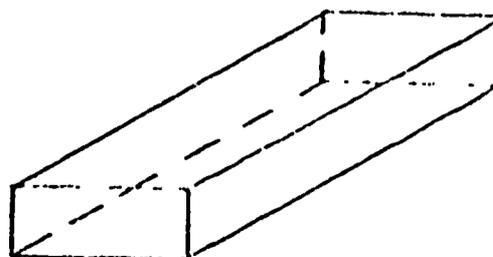
52. The figure on the right is a:

- a) rectangular prism
- b) triangular prism
- c) sphere
- d) pyramid



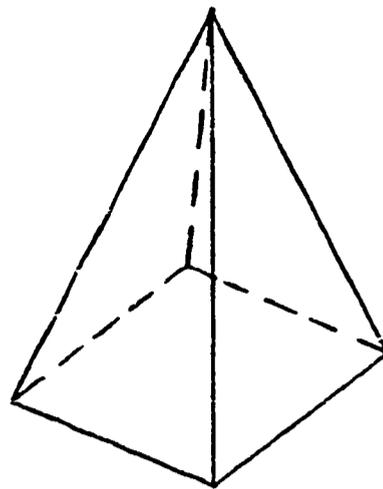
53. The figure on the right is a:

- a) rectangular prism
- b) triangular prism
- c) sphere
- d) pyramid



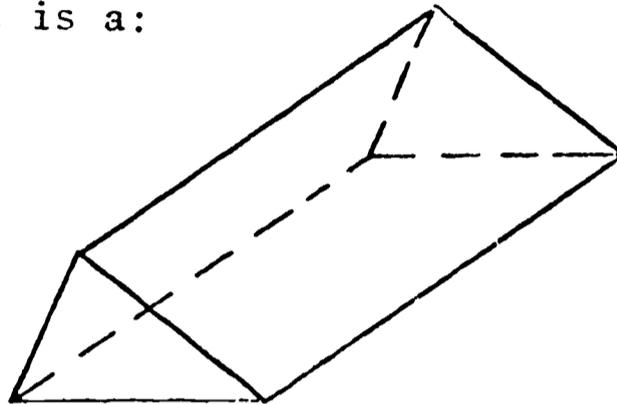
54. The figure on the right is a:

- a) rectangular prism
- b) triangular prism
- c) sphere
- d) pyramid



55. The figure on the right is a:

- a) rectangular prism
- b) triangular prism
- c) sphere
- d) pyramid



56. Which of the following is an example of parallel line segments?

- a) the corner of a room
- b) two streets that meet at a stoplight
- c) The long edges of a 12 inch ruler

57. Which of the following is an example of line segments that intersect?

- a) railroad tracks
- b) two power line wires strung from one pole to the next
- c) the top edge and the side edge of a door

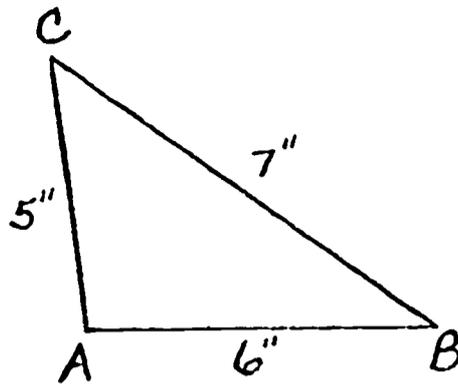
58. Two intersecting lines have _____ point(s) in common.

- a) 0
- b) 1
- c) 2
- d) an infinite number of

59. Which of the following is an example of perpendicular line segment

- a) railroad tracks
- b) the letter "T"
- c) line segments that form an acute angle

60.



The perimeter of $\triangle ABC$ is equal to _____.

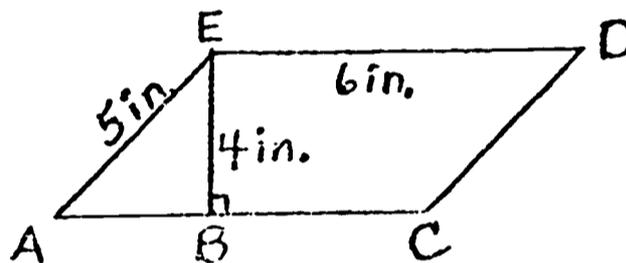
- a) $5'' + 6'' + 7''$ b) $5'' \times 6'' \times 7''$ c) $\frac{1}{2}'' \times 6'' \times 5''$

61. The perimeter of any polygon can be found by _____.

- a) measuring the length of one side and multiplying by the number of sides
 b) measuring the length of each side and adding the lengths
c) measuring the lengths of each side and finding the average

62. The area of $\square ACDE$ is _____.

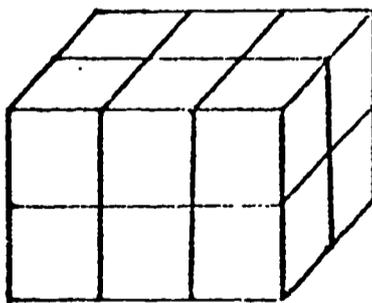
- a) 30 square inches
 b) 24 square inches
c) 12 square inches



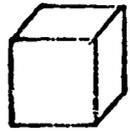
63. The volume of the following figure in unit cubes is _____.

 = 1 unit cube,

- a) 10
 b) 12
c) 8
d) 6

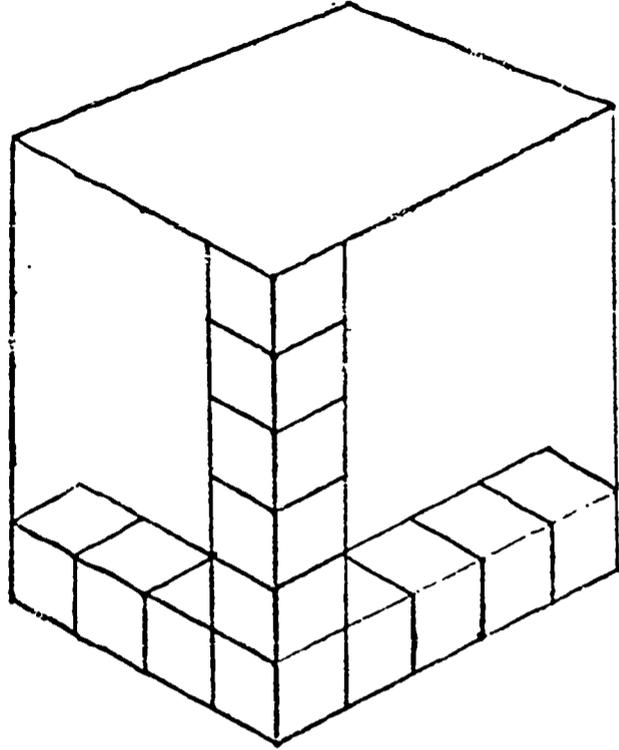


64. Find the volume of this box in unit cubes.



= 1 unit cube

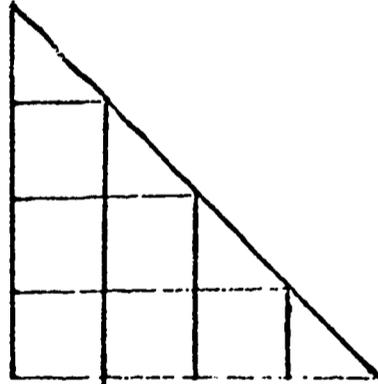
- a) 64
- b) 100
- c) 120
- d) 144



65. The area of $\triangle ABC$ is _____ square units.



= 1 square unit

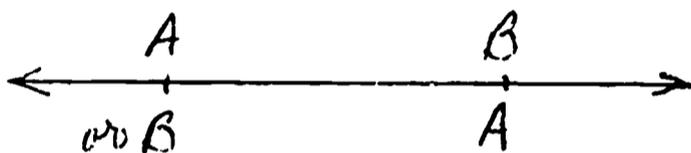


- a) 6
- b) 8
- c) 10
- d) 12

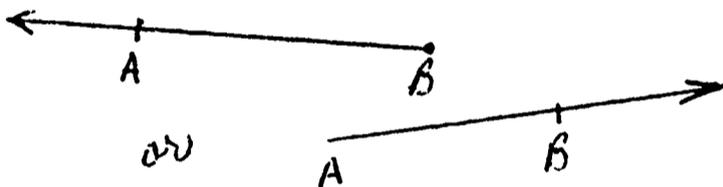
Part III

Directions: You are to make several geometric constructions on this and the next page. You should use only a straight edge, pencil, and in some cases, a compass. Do not erase the marks that you make on the paper as you do the constructing. These marks show whether or not you did the construction correctly. No construction marks are needed for items 1, 2, and 8.

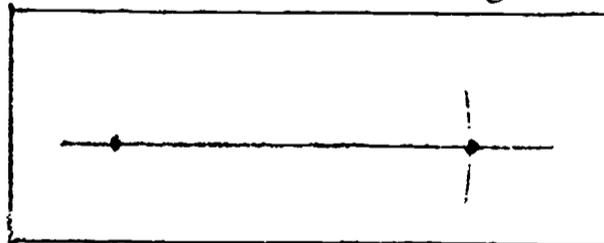
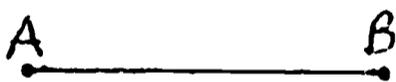
1. Construct a model of a line below and label it with two points A and B



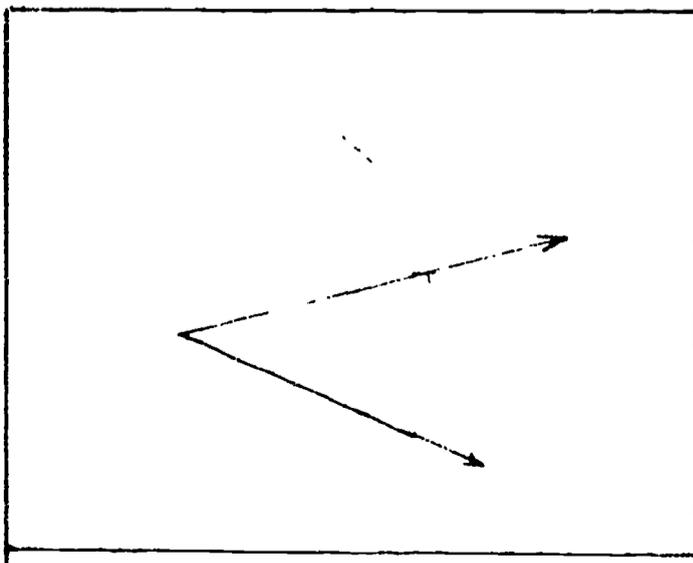
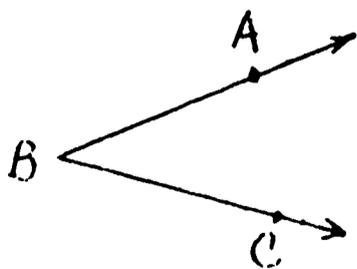
2. Construct a model of a ray below and label it with two points A and B.



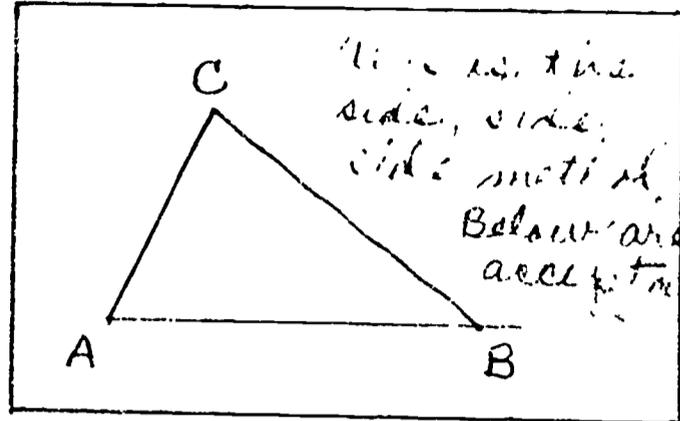
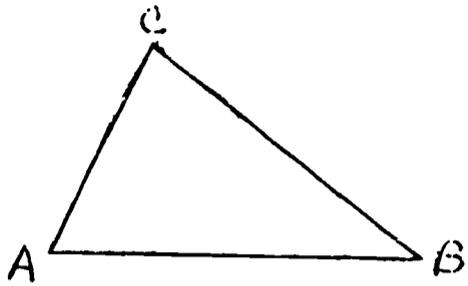
3. Construct a line segment in the box that is congruent to \overline{AB} .



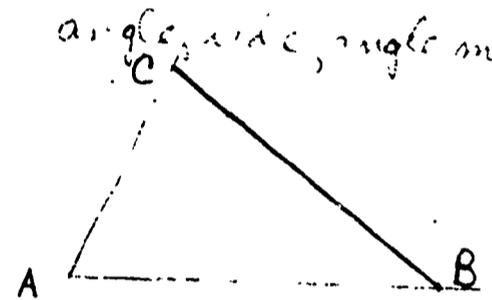
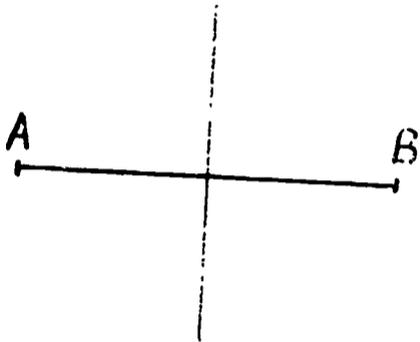
4. Construct an angle in the box that is congruent to $\angle ABC$.



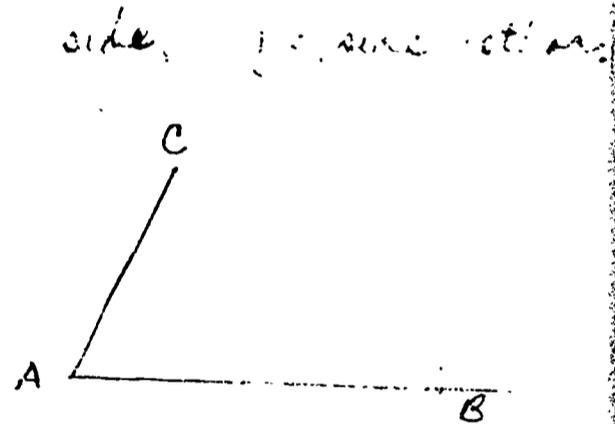
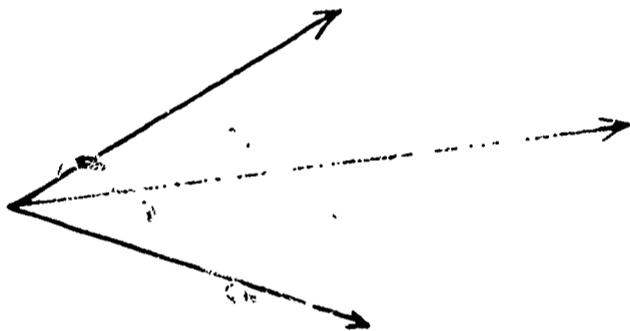
5. Construct a triangle in the box that is congruent to $\triangle ABC$ and then label the points A, B, and C on your triangle.



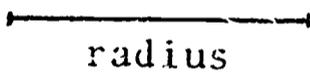
6. Bisect \overline{AB} below.



7. Bisect the angle below.



8. Using only a compass, construct a circle that has its center at C and a radius congruent to the one shown.



• C

Part IV

time limit: 3 minutes

ADDITION AND SUBTRACTION TEST

$$(1) \begin{array}{r} 9 \\ +2 \\ \hline 11 \end{array} \quad (2) \begin{array}{r} 8 \\ +7 \\ \hline 15 \end{array} \quad (3) \begin{array}{r} 7 \\ +6 \\ \hline 13 \end{array} \quad (4) \begin{array}{r} 8 \\ +5 \\ \hline 13 \end{array} \quad (5) \begin{array}{r} 9 \\ +4 \\ \hline 13 \end{array} \quad (6) \begin{array}{r} 4 \\ +8 \\ \hline 12 \end{array}$$

$$(7) \begin{array}{r} 7 \\ +4 \\ \hline 11 \end{array} \quad (8) \begin{array}{r} 8 \\ +3 \\ \hline 11 \end{array} \quad (9) \begin{array}{r} 5 \\ +7 \\ \hline 12 \end{array} \quad (10) \begin{array}{r} 3 \\ +9 \\ \hline 12 \end{array} \quad (11) \begin{array}{r} 6 \\ +8 \\ \hline 14 \end{array} \quad (12) \begin{array}{r} 2 \\ +8 \\ \hline 10 \end{array}$$

$$(13) \begin{array}{r} 14 \\ -9 \\ \hline 5 \end{array} \quad (14) \begin{array}{r} 13 \\ -8 \\ \hline 5 \end{array} \quad (15) \begin{array}{r} 11 \\ -6 \\ \hline 5 \end{array} \quad (16) \begin{array}{r} 12 \\ -3 \\ \hline 9 \end{array} \quad (17) \begin{array}{r} 18 \\ -9 \\ \hline 9 \end{array} \quad (18) \begin{array}{r} 15 \\ -7 \\ \hline 8 \end{array}$$

$$(19) \begin{array}{r} 11 \\ -8 \\ \hline 3 \end{array} \quad (20) \begin{array}{r} 13 \\ -4 \\ \hline 9 \end{array} \quad (21) \begin{array}{r} 10 \\ -7 \\ \hline 3 \end{array} \quad (22) \begin{array}{r} 14 \\ -5 \\ \hline 9 \end{array} \quad (23) \begin{array}{r} 11 \\ -2 \\ \hline 9 \end{array} \quad (24) \begin{array}{r} 13 \\ -6 \\ \hline 7 \end{array}$$

Time limit: 4 minutes

MULTIPLICATION TEST

(25) $\begin{array}{r} 5 \\ \times 5 \\ \hline 25 \end{array}$ (26) $\begin{array}{r} 9 \\ \times 4 \\ \hline 36 \end{array}$ (27) $\begin{array}{r} 8 \\ \times 6 \\ \hline 48 \end{array}$ (28) $\begin{array}{r} 7 \\ \times 0 \\ \hline 0 \end{array}$ (29) $\begin{array}{r} 4 \\ \times 8 \\ \hline 32 \end{array}$ (30) $\begin{array}{r} 6 \\ \times 9 \\ \hline 54 \end{array}$ (31) $\begin{array}{r} 7 \\ \times 4 \\ \hline 28 \end{array}$ (32) $\begin{array}{r} 0 \\ \times 6 \\ \hline 0 \end{array}$

(33) $\begin{array}{r} 2 \\ \times 4 \\ \hline 8 \end{array}$ (34) $\begin{array}{r} 6 \\ \times 6 \\ \hline 36 \end{array}$ (35) $\begin{array}{r} 7 \\ \times 7 \\ \hline 49 \end{array}$ (36) $\begin{array}{r} 5 \\ \times 9 \\ \hline 45 \end{array}$ (37) $\begin{array}{r} 3 \\ \times 7 \\ \hline 21 \end{array}$ (38) $\begin{array}{r} 2 \\ \times 2 \\ \hline 4 \end{array}$ (39) $\begin{array}{r} 3 \\ \times 9 \\ \hline 27 \end{array}$ (40) $\begin{array}{r} 7 \\ \times 2 \\ \hline 14 \end{array}$

(41) $\begin{array}{r} 4 \\ \times 3 \\ \hline 12 \end{array}$ (42) $\begin{array}{r} 6 \\ \times 8 \\ \hline 48 \end{array}$ (43) $\begin{array}{r} 3 \\ \times 2 \\ \hline 6 \end{array}$ (44) $\begin{array}{r} 2 \\ \times 8 \\ \hline 16 \end{array}$ (45) $\begin{array}{r} 5 \\ \times 4 \\ \hline 20 \end{array}$ (46) $\begin{array}{r} 9 \\ \times 2 \\ \hline 18 \end{array}$ (47) $\begin{array}{r} 7 \\ \times 6 \\ \hline 42 \end{array}$ (48) $\begin{array}{r} 6 \\ \times 5 \\ \hline 30 \end{array}$

(49) $\begin{array}{r} 8 \\ \times 7 \\ \hline 56 \end{array}$ (50) $\begin{array}{r} 7 \\ \times 5 \\ \hline 35 \end{array}$ (51) $\begin{array}{r} 3 \\ \times 3 \\ \hline 9 \end{array}$ (52) $\begin{array}{r} 5 \\ \times 2 \\ \hline 10 \end{array}$ (53) $\begin{array}{r} 7 \\ \times 1 \\ \hline 7 \end{array}$ (54) $\begin{array}{r} 8 \\ \times 2 \\ \hline 16 \end{array}$ (55) $\begin{array}{r} 8 \\ \times 3 \\ \hline 24 \end{array}$ (56) $\begin{array}{r} 4 \\ \times 6 \\ \hline 24 \end{array}$

(57) $\begin{array}{r} 9 \\ \times 9 \\ \hline 81 \end{array}$ (58) $\begin{array}{r} 5 \\ \times 7 \\ \hline 35 \end{array}$ (59) $\begin{array}{r} 8 \\ \times 8 \\ \hline 64 \end{array}$ (60) $\begin{array}{r} 6 \\ \times 3 \\ \hline 18 \end{array}$ (61) $\begin{array}{r} 4 \\ \times 4 \\ \hline 16 \end{array}$ (62) $\begin{array}{r} 3 \\ \times 5 \\ \hline 15 \end{array}$ (63) $\begin{array}{r} 1 \\ \times 4 \\ \hline 4 \end{array}$ (64) $\begin{array}{r} 9 \\ \times 6 \\ \hline 54 \end{array}$

Time limit: 4 minutes

DIVISION TEST

(65) $3 \overline{)9^3}$

(66) $6 \overline{)12^2}$

(67) $5 \overline{)35^7}$

(68) $8 \overline{)64^8}$

(69) $1 \overline{)8^8}$

(70) $5 \overline{)45^9}$

(71) $2 \overline{)18^9}$

(72) $7 \overline{)0^0}$

(73) $7 \overline{)42^6}$

(74) $4 \overline{)24^6}$

(75) $2 \overline{)10^5}$

(76) $9 \overline{)54^6}$

(77) $4 \overline{)16^4}$

(78) $2 \overline{)4^2}$

(79) $7 \overline{)21^3}$

(80) $9 \overline{)72^8}$

(81) $5 \overline{)20^4}$

(82) $3 \overline{)24^8}$

(83) $2 \overline{)6^3}$

(84) $9 \overline{)81^9}$

(85) $6 \overline{)36^6}$

(86) $3 \overline{)18^6}$

(87) $5 \overline{)5^3}$

(88) $9 \overline{)36^4}$

(89) $7 \overline{)49^7}$

(90) $4 \overline{)32^8}$

(91) $3 \overline{)12^4}$

(92) $7 \overline{)63^9}$

(93) $8 \overline{)40^5}$

(94) $9 \overline{)27^3}$

(95) $2 \overline{)14^7}$

(96) $8 \overline{)16^2}$

(97) $4 \overline{)20^5}$

(98) $6 \overline{)48^8}$

(99) $7 \overline{)28^4}$

(100) $8 \overline{)56^7}$

(101) $5 \overline{)25^5}$

(102) $3 \overline{)27^7}$

(103) $4 \overline{)18^2}$

(104) $6 \overline{)30^5}$

MATHEMATICS CONCEPTS TEST

Basic Test: Level Six

Answer Key and Teachers' Guide

MATHEMATICS CONCEPTS TEST

Basic Test: Level Six
(Grade 6)

ANSWER KEY AND TEACHERS' GUIDE

Description of Test

Items for this mathematics test have been written to assess behavioral objectives proposed by the Mathematics Curriculum Guide, K-6. Multiple choice test items are used where possible. Other behavioral objectives are tested by requiring the student to construct geometric figures. Immediate recall of basic facts is tested by four timed tests. A cross reference of objectives from the Curriculum Guide and items in the test is included with the Teachers' Guide.

Multiple Choice Test Items

Parts I and II of the test consist of items which can be machine scored directly from the IBM 1230 answer sheet. Students mark answers on answer sheets. The test administrator should inform all students to mark each response carefully with a No. 2 black lead pencil. Answer sheets marked with ink or crayon cannot be machine scored. There should be no extra marks of any type on the answer sheet. Teachers may want to hand score certain answer sheets. In the process of hand scoring, no mark should be placed on the answer sheet until machine scoring has been completed.

Computer Analysis

Computer analysis of test results will develop the following information:

1. Number of items correct, missed, and unanswered for each student.
2. Percentage score for each student.
3. Frequency distribution of percentage scores.
4. Mean score.
5. Standard deviation.
6. Item analysis: biserial correlation.

Identification of Student Answer Sheets

Student name and other information on the upper left hand side of the answer sheet is used for a quick visual identification. However, the computer does not use this data. In the upper right hand section space is provided to code a student identification number. Data will be processed by the computer in accordance with this number. The recommended procedure for assigning student identification numbers is as follows:

1. Assign each student a different six (6) digit number. If desired the first digits may be zeros, i.e., 000001, 000002, etc. The test results will be recorded numerically by this student number.
2. Record the number vertically in the column of boxes, one digit to a box, starting at the top.
3. Darken in the corresponding digit in the rows to the right of the boxes, one digit to a box.
4. The teacher should keep a record of the number she has assigned to each student so that she can identify the student by that number when the tests are returned.
5. Three answer sheets are required for this test. Care should be taken that each student uses the same number for both answer sheets.
6. Use one answer sheet for Part I (102 items) and another answer sheet for Part II (61 items).
7. Responses to Part III are recorded on the second answer sheet. A third answer sheet must be prepared for Part IV.

Teacher Scored Subtests

Parts III and IV of the test consist of items which must be hand scored by the teacher. After scoring, responses are recorded on answer sheets by the teacher.

Part III consists of nine items. Record the responses for this subtest on the second answer sheet. Mark "a" for a correct response and "b" for an incorrect response. For unanswered questions, place no mark on the answer sheet. Mark answers beginning with row 73 in Section B. *Note, Part II consists of 61 items. Therefore, rows 62-72 in Section A of the answer sheet are left blank.

Part IV consists of 104 items. After hand scoring, record the responses on a third answer sheet. Mark "a" for correct, "b" for incorrect and leave blank for unanswered questions.

Time Limits for Tests

This test is designed to be a mastery test. Consequently time limits have been established which will permit over ninety percent of the students to attempt every item on the test. Students should be told that there is no penalty for guessing. It is better to attempt a difficult item than to pass it over.

Administration in four sittings is recommended.

First Sitting	Part I, questions 1-50	50 minutes
Second Sitting	Part I, questions 51-102	50 minutes
Third Sitting	Part II	50 minutes
Fourth Sitting	Part III	20 minutes
Fourth Sitting	Part IV	11 minutes

Although Part I may be administered in two sittings, completion should be accomplished during the same day. This will preclude students checking or difficult items and perhaps changing their answers on the answer sheet.

Directions to Students

The student is expected to read the test and make a response either on the answer sheet or in the test booklet. No marks should be made in the test booklets for Parts I and II. For Parts III and IV the answer is written in the booklet. Unknown mathematical terms or processes should not be explained to students before or during the test.

Supplies Needed for Testing

1. For Parts I and II each student should have two No. 2 pencils, scratch paper, and test and one answer sheet.
2. For Part III students will need a compass and a straight edge, pencils, and one test.
3. For Part IV students will need pencils and copies of the tests.

Norms

District norms will be made available so that student achievement in different schools can be compared. Teachers should be more concerned with the item analysis and cross reference of objectives and test items. A study of test results for any class will provide insights concerning areas where more instruction is needed both for individuals and groups of students.

GRADE SIX

A CROSS REFERENCE OF OBJECTIVES FROM THE CLARK COUNTY CURRICULUM GUIDE AND ITEMS IN THE MATHEMATICS COVERAGE TEST

CODE: "N" means number strand, "Nu" means numeration strand;
 "O" means operations strand; "G" means geometry strand;
 and, "M" means measurement strand.

An example: M-4 means objective #4 in the measurement strand.

OBJECTIVE #	ITEM #	OBJECTIVE #	ITEM #
N-1	1	Nu-16	29
N-2	2	Nu-17	30
N-3	3	Nu-18	31
N-4	4	Nu-19	32
N-6	5	Nu-20	33
N-5	6	Nu-21	34
N-7	7	Nu-22	35
N-8	8	Nu-23	36
N-9	9	Nu-24	37
N-10	10	Nu-25	38
N-11	11	Nu-26	39
N-12	12	Nu-27	40
N-13	13	Nu-28	41
N-14	14	Nu-29	42
		Nu-30	43
Nu-1	15	Nu-31	44
Nu-2	16	Nu-32	NC
Nu-4	16	Nu-33	45
Nu-3	17	Nu-35	46
Nu-5	18, 19	Nu-36	47
Nu-6	20	Nu-37	48
Nu-7	21		
Nu-34	21		
Nu-8	7		
Nu-9	22		
Nu-10	25		
Nu-11	24		
Nu-12	25		
Nu-13	26		
Nu-14	27		
Nu-34	27		
Nu-15	28		

OBJECTIVE # ITEM #

O-1&7	49
O-1&7	50
O-2	51
O-4	52
O-5	53
O-6	54, 55
O-7	56, 57
O-8	58, 59
O-9	60
O-11	61
O-12	62
O-13	63
O-14	64
O-15	65
O-16	66
O-17	67
O-18	68
O-19	NC
O-20	69
O-21	70
O-22	71
O-23	72
O-24	73
O-25	74, 75
O-26	76
O-27	77, 78
O-28	NC
O-29	NC
O-30	79
O-31	80
O-32	81, 82
O-33	83
O-34	84
O-35	NC
O-36	85
O-37	NC
O-38	NC
O-39	86
O-40	87
O-41	88
O-42	89

OBJECTIVE # ITEM #

O-43	90
O-45	91
O-44	92
O-46	93
O-47	94
O-48	95
O-49	96, 97
O-50	98-100
O-51	101
O-52	101
O-53	102

O-3 & O-10 are the basic facts.

NC means not covered

PART II

OBJECTIVE # ITEM #

G-1	1
G-2	2,3
G-3	2,3
G-2	4-7
G-3	4-6
G-2	8-15
G-6	16-20
G-4	21
G-5	22
G-8	23-25
G-9	26
G-10	NC
G-13	NC
G-15	27
G-3	28-32
G-16	33
G-17	NC
G-18	33
G-19	34
G-11	35
G-14	36
G-7	37-41
G-12	47

M-1	42
M-2	NC
M-3	43
M-4	44
M-1	45
M-5	46
M-8	47
M-10	48
M-7	49
M-12	36
M-13	NC
M-14	NC
M-15	50
M-9	51
M-6	52
M-18	NC
M-20	53
M-16	54

OBJECTIVE # ITEM #

M-11	55
M-21	56-58
M-19	59
M-20	60
M-17	61

PART III

G-20	1-3
G-21	4
G-22	5
G-23	6
G-24	7
G-25	8
G-26	9

STUDENT NAME (PLEASE PRINT)		FIRST	MIDDLE INITIAL	STUDENT IDENTIFICATION NUMBER										
SIGNATURE		Johnston Harry J		BLACKEN APPROPRIATE DIGIT HERE										
INSTRUCTOR		COURSE NO	SECTION NO	0	1	2	3	4	5	6	7	8	9	
TEACHER NAME		Laura Dearing 215		2	0	1	2	3	4	5	6	7	8	9
NAME OF TEST		Math 1-16-69		2	0	1	2	3	4	5	6	7	8	9
DATE		Level 6 PART 1		3	0	1	2	3	4	5	6	7	8	9
INSTRUCTIONS Please Read Carefully				1	0	1	2	3	4	5	6	7	8	9
1. Erase completely any answer you change.				5	0	1	2	3	4	5	6	7	8	9
2. Do not write in margins.														
3. Use No. 2 pencil and fill box.														
4. Make marks heavy and black														
5. For (T, True and (F) False questions use (1) for (T) and (2) for (F)														

SECTION A

1 a	2 b	3 c	4 d	5 e	19 a	20 b	21 c	22 d	23 e	37 a	38 b	39 c	40 d	41 e	55 a	56 b	57 c	58 d	59 e
2 a	3 b	4 c	5 d	6 e	24 a	25 b	26 c	27 d	28 e	42 a	43 b	44 c	45 d	46 e	60 a	61 b	62 c	63 d	64 e
3 a	4 b	5 c	6 d	7 e	29 a	30 b	31 c	32 d	33 e	47 a	48 b	49 c	50 d	51 e	65 a	66 b	67 c	68 d	69 e
4 a	5 b	6 c	7 d	8 e	34 a	35 b	36 c	37 d	38 e	52 a	53 b	54 c	55 d	56 e	70 a	71 b	72 c	73 d	74 e
5 a	6 b	7 c	8 d	9 e	39 a	40 b	41 c	42 d	43 e	57 a	58 b	59 c	60 d	61 e	75 a	76 b	77 c	78 d	79 e
6 a	7 b	8 c	9 d	10 e	44 a	45 b	46 c	47 d	48 e	62 a	63 b	64 c	65 d	66 e	80 a	81 b	82 c	83 d	84 e
7 a	8 b	9 c	10 d	11 e	49 a	50 b	51 c	52 d	53 e	70 a	71 b	72 c	73 d	74 e	85 a	86 b	87 c	88 d	89 e
8 a	9 b	10 c	11 d	12 e	54 a	55 b	56 c	57 d	58 e	75 a	76 b	77 c	78 d	79 e	90 a	91 b	92 c	93 d	94 e
9 a	10 b	11 c	12 d	13 e	59 a	60 b	61 c	62 d	63 e	80 a	81 b	82 c	83 d	84 e	95 a	96 b	97 c	98 d	99 e
10 a	11 b	12 c	13 d	14 e	64 a	65 b	66 c	67 d	68 e	85 a	86 b	87 c	88 d	89 e	100 a	101 b	102 c	103 d	104 e
11 a	12 b	13 c	14 d	15 e	69 a	70 b	71 c	72 d	73 e	90 a	91 b	92 c	93 d	94 e	105 a	106 b	107 c	108 d	109 e
12 a	13 b	14 c	15 d	16 e	74 a	75 b	76 c	77 d	78 e	95 a	96 b	97 c	98 d	99 e	110 a	111 b	112 c	113 d	114 e
13 a	14 b	15 c	16 d	17 e	79 a	80 b	81 c	82 d	83 e	100 a	101 b	102 c	103 d	104 e	115 a	116 b	117 c	118 d	119 e
14 a	15 b	16 c	17 d	18 e	84 a	85 b	86 c	87 d	88 e	105 a	106 b	107 c	108 d	109 e	120 a	121 b	122 c	123 d	124 e
15 a	16 b	17 c	18 d	19 e	89 a	90 b	91 c	92 d	93 e	110 a	111 b	112 c	113 d	114 e	125 a	126 b	127 c	128 d	129 e
16 a	17 b	18 c	19 d	20 e	94 a	95 b	96 c	97 d	98 e	115 a	116 b	117 c	118 d	119 e	130 a	131 b	132 c	133 d	134 e
17 a	18 b	19 c	20 d	21 e	99 a	100 b	101 c	102 d	103 e	120 a	121 b	122 c	123 d	124 e	135 a	136 b	137 c	138 d	139 e
18 a	19 b	20 c	21 d	22 e	104 a	105 b	106 c	107 d	108 e	125 a	126 b	127 c	128 d	129 e	140 a	141 b	142 c	143 d	144 e
19 a	20 b	21 c	22 d	23 e	109 a	110 b	111 c	112 d	113 e	130 a	131 b	132 c	133 d	134 e	145 a	146 b	147 c	148 d	149 e
20 a	21 b	22 c	23 d	24 e	114 a	115 b	116 c	117 d	118 e	135 a	136 b	137 c	138 d	139 e	150 a	151 b	152 c	153 d	154 e
21 a	22 b	23 c	24 d	25 e	119 a	120 b	121 c	122 d	123 e	140 a	141 b	142 c	143 d	144 e	155 a	156 b	157 c	158 d	159 e
22 a	23 b	24 c	25 d	26 e	124 a	125 b	126 c	127 d	128 e	145 a	146 b	147 c	148 d	149 e	160 a	161 b	162 c	163 d	164 e
23 a	24 b	25 c	26 d	27 e	129 a	130 b	131 c	132 d	133 e	150 a	151 b	152 c	153 d	154 e	165 a	166 b	167 c	168 d	169 e
24 a	25 b	26 c	27 d	28 e	134 a	135 b	136 c	137 d	138 e	155 a	156 b	157 c	158 d	159 e	170 a	171 b	172 c	173 d	174 e
25 a	26 b	27 c	28 d	29 e	139 a	140 b	141 c	142 d	143 e	160 a	161 b	162 c	163 d	164 e	175 a	176 b	177 c	178 d	179 e
26 a	27 b	28 c	29 d	30 e	144 a	145 b	146 c	147 d	148 e	165 a	166 b	167 c	168 d	169 e	180 a	181 b	182 c	183 d	184 e
27 a	28 b	29 c	30 d	31 e	149 a	150 b	151 c	152 d	153 e	170 a	171 b	172 c	173 d	174 e	185 a	186 b	187 c	188 d	189 e
28 a	29 b	30 c	31 d	32 e	154 a	155 b	156 c	157 d	158 e	175 a	176 b	177 c	178 d	179 e	190 a	191 b	192 c	193 d	194 e
29 a	30 b	31 c	32 d	33 e	159 a	160 b	161 c	162 d	163 e	180 a	181 b	182 c	183 d	184 e	195 a	196 b	197 c	198 d	199 e
30 a	31 b	32 c	33 d	34 e	164 a	165 b	166 c	167 d	168 e	185 a	186 b	187 c	188 d	189 e	200 a	201 b	202 c	203 d	204 e
31 a	32 b	33 c	34 d	35 e	169 a	170 b	171 c	172 d	173 e	190 a	191 b	192 c	193 d	194 e	205 a	206 b	207 c	208 d	209 e
32 a	33 b	34 c	35 d	36 e	174 a	175 b	176 c	177 d	178 e	195 a	196 b	197 c	198 d	199 e	210 a	211 b	212 c	213 d	214 e
33 a	34 b	35 c	36 d	37 e	179 a	180 b	181 c	182 d	183 e	200 a	201 b	202 c	203 d	204 e	215 a	216 b	217 c	218 d	219 e
34 a	35 b	36 c	37 d	38 e	184 a	185 b	186 c	187 d	188 e	205 a	206 b	207 c	208 d	209 e	220 a	221 b	222 c	223 d	224 e
35 a	36 b	37 c	38 d	39 e	189 a	190 b	191 c	192 d	193 e	210 a	211 b	212 c	213 d	214 e	225 a	226 b	227 c	228 d	229 e
36 a	37 b	38 c	39 d	40 e	194 a	195 b	196 c	197 d	198 e	215 a	216 b	217 c	218 d	219 e	230 a	231 b	232 c	233 d	234 e
37 a	38 b	39 c	40 d	41 e	199 a	200 b	201 c	202 d	203 e	220 a	221 b	222 c	223 d	224 e	235 a	236 b	237 c	238 d	239 e
38 a	39 b	40 c	41 d	42 e	204 a	205 b	206 c	207 d	208 e	225 a	226 b	227 c	228 d	229 e	240 a	241 b	242 c	243 d	244 e
39 a	40 b	41 c	42 d	43 e	209 a	210 b	211 c	212 d	213 e	230 a	231 b	232 c	233 d	234 e	245 a	246 b	247 c	248 d	249 e
40 a	41 b	42 c	43 d	44 e	214 a	215 b	216 c	217 d	218 e	235 a	236 b	237 c	238 d	239 e	250 a	251 b	252 c	253 d	254 e
41 a	42 b	43 c	44 d	45 e	219 a	220 b	221 c	222 d	223 e	240 a	241 b	242 c	243 d	244 e	255 a	256 b	257 c	258 d	259 e
42 a	43 b	44 c	45 d	46 e	224 a	225 b	226 c	227 d	228 e	245 a	246 b	247 c	248 d	249 e	260 a	261 b	262 c	263 d	264 e
43 a	44 b	45 c	46 d	47 e	229 a	230 b	231 c	232 d	233 e	250 a	251 b	252 c	253 d	254 e	265 a	266 b	267 c	268 d	269 e
44 a	45 b	46 c	47 d	48 e	234 a	235 b	236 c	237 d	238 e	255 a	256 b	257 c	258 d	259 e	270 a	271 b	272 c	273 d	274 e
45 a	46 b	47 c	48 d	49 e	239 a	240 b	241 c	242 d	243 e	260 a	261 b	262 c	263 d	264 e	275 a	276 b	277 c	278 d	279 e
46 a	47 b	48 c	49 d	50 e	244 a	245 b	246 c	247 d	248 e	265 a	266 b	267 c	268 d	269 e	280 a	281 b	282 c	283 d	284 e
47 a	48 b	49 c	50 d	51 e	249 a	250 b	251 c	252 d	253 e	270 a	271 b	272 c	273 d	274 e	285 a	286 b	287 c	288 d	289 e
48 a	49 b	50 c	51 d	52 e	254 a	255 b	256 c	257 d	258 e	275 a	276 b	277 c	278 d	279 e	290 a	291 b	292 c	293 d	294 e
49 a	50 b	51 c	52 d	53 e	259 a	260 b	261 c	262 d	263 e	280 a	281 b	282 c	283 d	284 e	295 a	296 b	297 c	298 d	299 e
50 a	51 b	52 c	53 d	54 e	264 a	265 b	266 c	267 d	268 e	285 a	286 b	287 c	288 d	289 e	300 a	301 b	302 c	303 d	304 e
51 a	52 b	53 c	54 d	55 e	269 a	270 b	271 c	272 d	273 e	290 a	291 b	292 c	293 d	294 e	305 a	306 b	307 c	308 d	309 e
52 a	53 b	54 c	55 d	56 e	274 a	275 b	276 c	277 d	278 e	295 a	296 b	297 c	298 d	299 e	310 a	311 b	312 c	313 d	314 e
53 a	54 b	55 c	56 d	57 e	279 a	280 b	281 c	282 d	283 e	300 a	301 b	302 c	303 d	304 e	315 a	316 b	317 c	318 d	319 e
54 a	55 b	56 c	57 d	58 e	284 a	285 b	286 c	287 d	288 e	305 a	306 b	307 c	308 d	309 e	320 a	321 b	322 c	323 d	324 e
55 a	56 b	57 c	58 d	59 e	289 a	290 b	291 c	292 d	293 e	310 a	311 b	312 c	313 d	314 e	325 a	326 b	327 c	328 d	329 e
56 a	57 b	58 c	59 d	60 e	294 a	295 b	296 c	297 d	298 e	315 a	316 b	317 c	318 d	319 e	330 a	331 b	332 c	333 d	334 e
57 a	58 b	59 c	60 d	61 e	299 a	300 b	301 c	302 d	303 e	320 a	321 b	322 c	323 d	324 e	335 a	336 b	337 c	338 d	339 e
58 a	59 b	60 c	61 d	62 e	304 a	305 b	306 c	307 d	308 e	325 a	326 b	327 c	328 d	329 e	340 a	341 b	342 c	343 d	344 e
59 a	60 b	61 c	62 d	63 e	309 a	310 b	311 c	312 d	313 e	330 a	331 b	332 c	333 d	334 e	345 a	346 b	347 c	348 d	349 e
60 a	61 b	62 c	63 d	64 e	314 a	315 b	316 c	317 d	318 e	335 a	336 b	337 c	338 d	339 e	350 a	351 b	352 c	353 d	354 e
61 a	62 b	63 c	64 d	65 e	319 a	320 b	321 c	322 d	323 e	340 a	341 b	342 c	343 d	344 e	355 a	356 b	357 c	358 d	359 e
62 a	63 b	64 c	65 d	66 e	324 a	325 b													

MATHEMATICS CONCEPTS TESTS

Basic Test: Level Six

Answer Key

MATHEMATICS CONCEPTS TEST

Basic Test: Level Six

1. Which of the following sets is infinite?

a) The set of all fords

b) the set of all counting numbers

c) the set of all 6th grade boys

d) the set of all two-headed dogs

2. The cardinal number of this set is:

$\{\square, \bigcirc, \hexagon, 8, A, \triangle, \square\}$

a) 5

b) 10

c) 7

d) 6

3. Which pair of numerals come before and after 16,710?

a) 16,709, _____, 16,711

b) 16,700, _____, 16,702

c) 16,712, _____, 16,714

d) 16,700, _____, 16,720

4. $R = \{12, 9, 8, 7, 25, 2, 16, 15\}$

The subset of odd numbers in set R is

a) $\{12, 8, 2, 16\}$

b) $\{9, 7, 25, 15\}$

c) $\{12, 9, 8, 16, 15\}$

d) $\{9, 8, 7, 25, \dots\}$

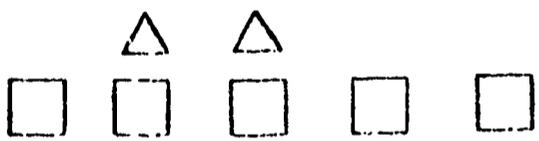
5. Which number is a prime number?

a) 26

b) 39

c) 47

d) 49

6. Having a million dollars in one bank is the same as having
- a) a thousand dollars in each of a thousand banks.
 - b) a hundred dollars in each of a thousand banks.
 - c) a thousand dollars in each of a hundred banks.
 - d) a hundred dollars in each of a hundred banks.
7. Which of the following is a prime factorization of 36?
- a) 1×36
 - b) $2 \times 2 \times 3 \times 3$
 - c) 4×9
 - d) $2 \times 2 \times 2 \times 3$
8. Which set of numerals is arranged from greatest to least?
- a) $\{0, 5, 65, 900, 1000\}$
 - b) $\{1600, 1400, 900, 1010, 867\}$
 - c) $\{2200, 2165, 2075, 1967, 1821\}$
 - d) $\{5, 10, 20, 70, 90\}$
9. Which sign makes the statement true? $20 \div 5$ $25 \div 5$
- a) $<$
 - b) $>$
 - c) $=$
 - d) \div
10. What is the ratio of triangles to squares?
- 
- a) two to one and one half
 - b) 0:2
 - c) $5/2$
 - d) $2/5$

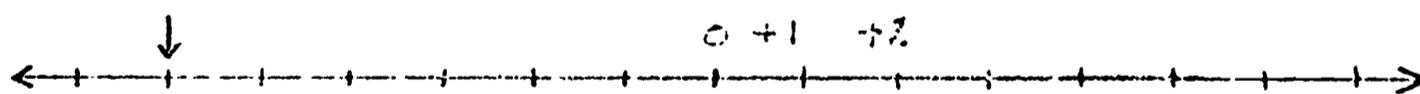
11. The rational number $\frac{25}{4}$ can be renamed as:

- a) 6.25
- b) 4:25
- c) $6\frac{1}{4}$
- d) both A and C are correct

12. The set of rational numbers that is arranged in order from greatest to least is:

- a) $\left\{.33, \frac{1}{2}, \frac{3}{4}, .56, \frac{7}{4}, \frac{1}{8}\right\}$
- b) $\left\{\frac{1}{8}, \frac{1}{2}, .33, .56, \frac{3}{4}, \frac{7}{4}\right\}$
- c) $\left\{\frac{7}{4}, \frac{3}{4}, .56, \frac{1}{2}, .33, \frac{1}{8}\right\}$
- d) $\left\{.56, .33, \frac{7}{4}, \frac{3}{4}, \frac{1}{2}, \frac{1}{8}\right\}$

13. The arrow is pointing to which number on the number line?



- a) +2
- b) +6
- c) -3
- d) -6

14. π (pi) is

- a) exactly equal to $\frac{22}{7}$
- b) approximately equal to $\frac{22}{7}$
- c) exactly equal to 3.14
- d) is a whole number

15. Which of the following is not a name for 8?

- a) $\frac{32}{4}$
- b) 4^2
- c) $\frac{8}{1}$
- d) 8.00

16. One hundred one million, twenty-nine thousand, seven hundred three is:

- a) 101,029,703
- b) 101,729,073
- c) 101,029,073
- d) 101,290,703

17. 736,895,990,042,108 could be written as:

- a) seven hundred thirty-six million, eight hundred ninety-five trillion, nine hundred ninety million, forty-two thousand, one hundred eight
- b) seven hundred billion, thirty-six million, eight hundred ninety-five thousand, nine hundred ninety-one hundred eight.
- c) seven hundred thirty-six trillion, eight hundred ninety-five billion, nine hundred ninety million, forty-two thousand, one hundred eight.
- d) seven hundred thirty-six trillion, eight hundred ninety-five million, nine hundred ninety thousand, forty-two hundred, one hundred eight.

18. In the numeral 7 8 5 , 9 3 2 , 7 6 4 , 8 9 1 , 3 0 4.
Period 5 Period 4 Period 3 Period 2 Period 1

Period 4 tells the number of:

- a) trillions b) millions c) billions d) hundreds

19. In the numeral 785,932,764,891,304, which digit is in one billion's place?

- a) 7 b) 1 c) 2 d) 5

20. The numeral 475,245 written in expanded notation is:

- a) $(4 \times 100,000) + (7 \times 10,000) + (3 \times 100,000) + (2 \times 100) + (4 \times 10) + (5 \times 1)$
- b) $(4 \times 100,000) + (7 \times 10,000) + (3 \times 1000) + (2 \times 100) + (4 \times 10) + (5 \times 1)$
- c) $(4 \times 100,000) + (70 \times 1000) + (300 \times 100) + (2 \times 100) + (4 \times 10) + (5 \times 1)$
- d) $(4 \times 10,000) + (7 \times 1,000) + (3 \times 1,000) + (2 \times 10) + (4 \times 1) + (5)$

21. The expanded numeral for 81,437 written in exponential notation is:

- a) $(8 \times 10^4) + (1 \times 10^3) + (4 \times 10^2) + (3 \times 10^1) + (7 \times 10^0)$
- b) $(8 \times 10^3) + (1 \times 10^2) + (4 \times 10^1) + (3 \times 10^0) + (7)$
- c) $(8 \times 10^5) + (1 \times 10^4) + (4 \times 10^3) + (3 \times 10^2) + (7 \times 10^1)$
- d) $(80 \times 10^3) + (10 \times 10^2) + (400) + (30) + (7)$

22. The numeral 965 written as a Roman numeral is:

- a) MCLV
- b) CMLXV
- c) CMLV
- d) CMXLV

23. The Roman numeral MCCXLV is written in Arabic numerals as:

- a) 12,450
- b) 1,425
- c) 1,245
- d) 10,245

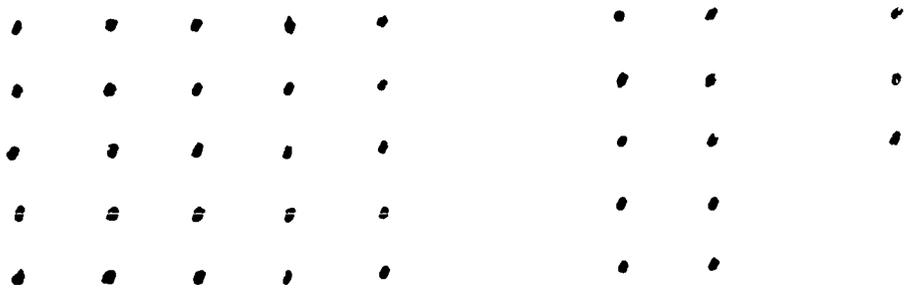
24. Given a Roman numeral XXX and a base ten numeral 333, which is true?

- a) $XXX = 10 + 10 + 10$
- b) $333 = 3 + 3 + 3$
- c) Each "X" has a different value depending on its place in the numeral.
- d) The two numerals name the same number.

25. The Roman numeral CDLX means:

- a) $(500 + 100) - (50 + 10)$
- b) $(500 - 100) + (50 - 10)$
- c) $(500 + 100) + (50 - 10)$
- d) $(500 - 100) + (50 + 10)$

26. The base five numeral for the following set of dots is:

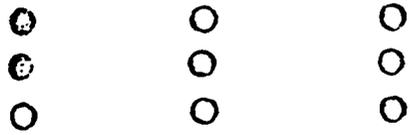


- a) 38_{five} b) 321_{five} c) 123_{five} d) 523_{five}

27. Which of the following does not mean the same as 10110_{two} ?

- a) $(1 \times 22) + (0 \times 8) + (1 \times 4) + (0 \times 2) + (1 \times 1)$
 b) $(1 \times 16) + (0 \times 8) + (1 \times 4) + (1 \times 2) + (0 \times 1)$
 c) $(1 \times 2^4) + (0 \times 2^3) + (1 \times 2^2) + (1 \times 2^1) + (0 \times 2^0)$
 d) 22_{ten}

28. The subset of shaded dots in this set can be represented by what rational number?



- a) $\frac{2}{9}$ b) $\frac{1}{3}$ c) $\frac{7}{9}$ d) $\frac{2}{3}$

29. In the fraction $\frac{7}{3}$ the 7 is:

- a) the divisor
 b) the denominator
 c) the numerator
 d) the addend

30. Given the fraction $\frac{7}{8}$, two equivalent fractions are:

- a) $\frac{8}{9}$, $\frac{9}{10}$ b) $\frac{14}{16}$, $\frac{21}{24}$ c) $\frac{2}{3}$, $\frac{5}{6}$ d) $\frac{14}{16}$, $\frac{20}{24}$

31. The fraction $\frac{12}{32}$ renamed to its simplest form is:

- a) $\frac{4}{8}$ b) $\frac{3}{7}$ c) $\frac{6}{16}$ d) $\frac{3}{8}$

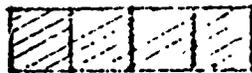
32. Find the missing numerator of $\frac{4}{9} = \frac{\quad}{27} = \frac{20}{45}$

- a) 36 b) 8 c) 12 d) 16

33. Which set of the following fractions are all equivalent?

- a) $\left\{ \frac{6}{8}, \frac{18}{24}, \frac{3}{4} \right\}$
 b) $\left\{ \frac{3}{4}, \frac{6}{8}, \frac{12}{24} \right\}$
 c) $\left\{ \frac{1}{2}, \frac{2}{4}, \frac{3}{5} \right\}$
 d) $\left\{ \frac{1}{2}, \frac{2}{3}, \frac{3}{4} \right\}$

34. Which numeral does not represent the shaded portion of this model?



- a) $\frac{7}{4}$ b) one and three-fourths c) $\frac{1}{4}$ d) $1\frac{3}{4}$

35. The improper fraction $\frac{25}{7}$ renamed as a mixed numeral is:

- a) 3.99 b) $4\frac{3}{7}$ c) $3\frac{6}{7}$ d) $3\frac{4}{7}$

36. The mixed number $7\frac{14}{100}$ changed into a decimal numeral is:

- a) 7.014 b) 7.14 c) 7.104 d) .714

37. The numeral 23.74 written in expanded notation is:

- a) $20 + 3 + 70 + 4$
 b) $(2 \times 10) + (3 \times 1) + (7 \times \frac{1}{10}) + (4 \times \frac{1}{100})$
 c) $(2 \times 1) + (3 \times \frac{1}{10}) + (7 \times \frac{1}{100}) + (4 \times \frac{1}{1000})$
 d) $(2 \times 3) + (7 \times 4)$

38. Another name for two thousand, four hundred seventy-nine and six thousand, three hundred five ten thousandths is:
- a) 2,479 305
 - b) 2,479,630.5
 - c) 24,796,305
 - d) 24,796.305
39. The numeral .1785 can be written in expanded notation as:
- a) $(1 \times 100^4) + (7 \times 10^3) + (8 \times 10^2) + (5 \times 10^1)$
 - b) $(1 \times 1000) + (7 \times 100) + (8 \times 10) + (5 \times 1)$
 - c) $1000 + 700 + 80 + 5$
 - d) $\frac{1}{10} + \frac{7}{100} + \frac{8}{1000} + \frac{5}{10,000}$
40. Which of the following names is a repeating decimal fraction?
- a) .50
 - b) .75
 - c) .33
 - d) .33...
41. Which common fraction is a repeating decimal fraction?
- a) $\frac{1}{2}$
 - b) $\frac{1}{4}$
 - c) $\frac{2}{3}$
 - d) $\frac{3}{5}$
42. Which of the following is not another name for 47%?
- a) .47
 - b) .047
 - c) forty-seven percent
 - d) $\frac{47}{100}$
43. Which answer lists the correct order of the types of numerals in the following set?
- $$\left\{ \frac{3}{4}, .64, 3\frac{2}{3}, 26\% \right\}$$
- a) common fraction, decimal fraction, mixed numeral, per cent
 - b) decimal fraction, mixed numeral, common fraction, percent
 - c) mixed numeral, decimal fraction, common fraction, percent
 - d) percent, decimal fraction, common fraction, mixed numeral

44. Another name for "the opposite of 8" is:

- a) negative eight
- b) positive eight
- c) eight percent
- d) eight in base nine

45. The numeral 3,628.767 rounded to the nearest hundredth is:

- a) 3,600.00
- b) 3,628.76
- c) 3,628.8
- d) 3,628.77

46. Another name for 3^5 is:

- a) $5 \times 5 \times 5$
- b) $3 \times 3 \times 3 \times 3 \times 3$
- c) $3 + 3 + 3 + 3 + 3$
- d) 5^3

47. Which of the following statements is incorrect?

- a) $2^3 = 2 \times 3$
- b) $3^2 = 3 \times 3$
- c) $5^3 = 125$
- d) $2^3 = 8$

48. Written in scientific notation 93,000,000 is:

- a) 9.3×10^7
- b) $93 \times 1,000,000$
- c) 9.3×10^8
- d) $9!3 \times 10^6$

49. If $\square + 46,934 = 6,000,001$, then $\square =$
 a) 6,053,967 b) 5,953,067 c) 6,043,935 d) 4,959,067
50. If $\square - 2456 = 3798$, then $\square =$
 a) 1342 b) 6254 c) 5144 d) 5254
51. $\begin{array}{r} 8076 \\ -1384 \end{array}$ Which of the problems below is a check of the answer to this problem?
 a) $\begin{array}{r} 1384 \\ -6692 \end{array}$ b) $\begin{array}{r} 8076 \\ \times 6692 \end{array}$ c) $\begin{array}{r} 8076 \\ +6692 \end{array}$ d) $\begin{array}{r} 1384 \\ +6692 \end{array}$
52. Which arrangement seems easiest for adding these numbers?
 a) $(17 + 9) + (3 + 1)$
 b) $(17 + 3) + (9 + 1)$
 c) $(3 + 9) + (17 + 1)$
 d) $(1 + 3) + (9 + 17)$
53. To make this statement true, $6428 + \square = 6428 - \square$, \square can be
 a) any number b) 1 only c) 6428 only d) zero only
54. $\begin{array}{r} 638,245,079 \\ + 25,346,942 \end{array}$
 a) 663,592,021
 b) 612,898,137
 c) 653,581,911
 d) 653,592,121
55. $\begin{array}{r} 900,389,400 \\ - 9,230,099 \end{array}$
 a) 909,619,499
 b) 901,159,301
 c) 891,159,301
 d) 801,159,311

56. $56 \bigcirc 8 = 64$ What symbol placed in the circle would make this statement true?

- a) + b) - c) x d) \div

57. $1832 \bigcirc 1802 = 30$ What symbol placed in the circle would make this statement true?

- a) + b) - c) x d) \div

58. $\square \times 64 = 25,088$ What operation would you use to correctly solve this problem?

- a) + b) - c) x d) \div

59. Which equation has the same solution as $240 \div 48 =$

- a) $240 - 48 = \square$
 b) $240 + 48 = \square$
 c) $48 \times \square = 240$
 d) $48 \div 240 = \square$

60. Which of the items below should be used to check the answer to this problem?

$$\begin{array}{r} 675 \text{ r } 13 \\ 14 \overline{)9463} \end{array}$$

- | | | | | | | | |
|----|---|----|---|----|--|-------------------------------------|---|
| a) | $\begin{array}{r} 9463 \\ \times 14 \\ \hline 37852 \\ 9463 \\ \hline 132482 \end{array}$ | b) | $\begin{array}{r} 675 \\ \times 13 \\ \hline 2025 \\ 675 \\ \hline 8775 \\ + 14 \\ \hline 8789 \end{array}$ | c) | $\begin{array}{r} 675 \\ \times 14 \\ \hline 2700 \\ 675 \\ \hline 9465 \end{array}$ | <input checked="" type="radio"/> d) | $\begin{array}{r} 675 \\ \times 14 \\ \hline 2700 \\ 675 \\ \hline 9450 \\ + 13 \\ \hline 9463 \end{array}$ |
|----|---|----|---|----|--|-------------------------------------|---|

61. Which arrangement seems easiest for multiplying these numbers?

- a) $(4 \times 359) \times 25$
 b) $(4 \times 25) \times 359$
 c) $(359 \times 4) \times 25$
 d) $(359 \times 25) \times 4$

$$\begin{array}{r}
 62. \quad 218 \\
 \quad \times 306 \\
 \hline
 1308 \\
 65400 \\
 \hline
 66708
 \end{array}$$

Which of the items below could be used to check the answer to this problem?

a) $\begin{array}{r} 306 \\ \cdot x218 \end{array}$

b) $\begin{array}{r} 306 \\ -218 \end{array}$

c) $\begin{array}{r} 65,400 \\ + 306 \end{array}$

d) $\begin{array}{r} 66,708 \\ -64,400 \end{array}$

63. To make this statement true, $1523 \div \square = 1523 \times \square$
 \square can be

a) any number

b) 1 only

c) 1523 only

d) zero only

64. If $7320 \times 0 = \square$, then $\square =$

a) 7320

b) 73,200

c) 0

d) 10

65. Which problem cannot be solved?

a) $0 \div 4 =$

b) $4 \div 4 =$

c) $4 \div 0 =$

d) $1 \div 1 =$

66. $53 \times 624 =$

a) $(5 \times 624) + (3 \times 624)$

b) $(5 \times 624) + (30 \times 624)$

c) $(50 \times 624) + (3 \times 624)$

d) $(53 \times 60) + (53 \times 24)$

67.
$$\begin{array}{r} 9073 \\ \times 286 \\ \hline \end{array}$$

- a) 2,594,878 b) 9,359 c) 2,579,268 d) 145,168

68. $45 \overline{)4374}$

- a) 98 r1 b) 817 r9 c) 9 r324 d) 97 r9

69. What symbol placed in the \bigcirc makes this statement true?

$$1212 \bigcirc 4 = 303$$

- a) + b) - c) \times d) \div

70. Find the average of these numbers: 56, 61, 57, 58

- a) 290 b) 58 c) 29 d) 57

71. Which number names the greatest common factor of this set of numbers? {5, 12, 18, 24}

- a) 6 b) 3 c) 72 d) 24

72. Which number names the least common multiple of this set of numbers? {6, 12, 24}

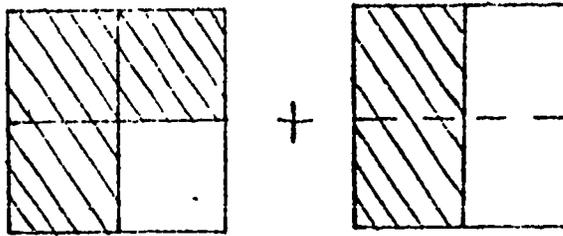
- a) 12 b) 8 c) 48 d) 24

73. In this equation the "3" is:

$$5^3 = 125$$

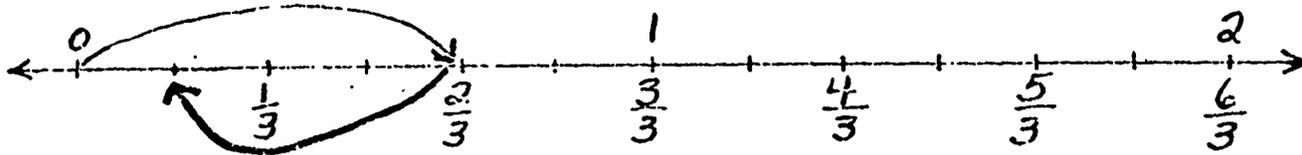
- a) the base
 b) the exponent
 c) a factor
 d) the product

74. This model shows:



- a) $\frac{3}{4} + \frac{1}{4} = 1$
- b) $\frac{3}{4} + 1 = 2$
- c) $\frac{3}{4} + \frac{2}{4} = \frac{5}{8}$
- d) $\frac{3}{4} + \frac{1}{2} = \frac{5}{4}$

75. This number line model shows which equation?



- a) $2\frac{2}{3} + \frac{1}{2} = 3\frac{1}{6}$
- b) $\frac{5}{6} + \frac{2}{3} = 2$
- c) $2\frac{2}{3} - \frac{3}{6} = 2\frac{1}{6}$
- d) $2\frac{2}{3} + \frac{1}{6} = 2\frac{5}{6}$

76. Which equation has the same solution as $2\frac{2}{3} - \square = \frac{5}{6}$

- | | | | |
|-------------------|---|------------------|-----------------|
| a) $2\frac{2}{3}$ | <input checked="" type="radio"/> b) $\frac{5}{6}$ | c) \square | d) \square |
| $+ \frac{5}{6}$ | $+ \square$ | $- 2\frac{2}{3}$ | $- \frac{5}{6}$ |
| \square | $2\frac{2}{3}$ | $\frac{5}{6}$ | $2\frac{2}{3}$ |

77. $\frac{2}{3} + \square = \square + \frac{2}{3}$ is true for \square is equal to:

- a) any number
- b) 1 only
- c) 0 only
- d) never true

78. $(\frac{1}{3} + []) + \frac{1}{4} = \frac{1}{3} + ([] + \frac{1}{4})$ is true for $[]$ is equal to

- a) any number
- b) 1 only
- c) 0 only
- d) never true

79. $\frac{2}{3} + \frac{8}{9} =$ Which names the answer in the lowest terms?

- a) $1\frac{2}{3}$
- b) $1\frac{5}{9}$
- c) $\frac{15}{9}$
- d) $1\frac{4}{9}$

80. $7\frac{1}{4}$
 $- 4\frac{3}{4}$

- a) $3\frac{2}{3}$
- b) $3\frac{7}{12}$
- c) $3\frac{1}{4}$
- d) $\frac{7}{12}$

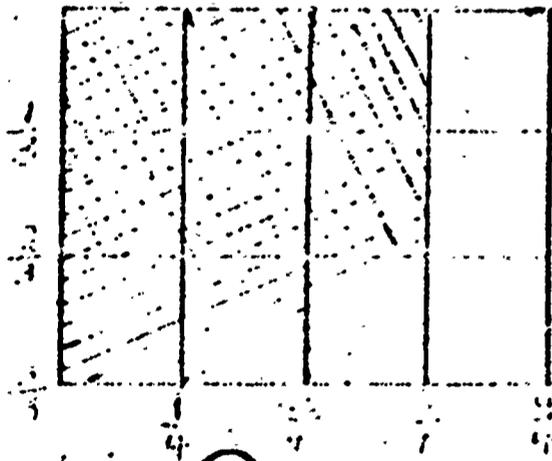
81. $.5 + .04 + .005 + .345 =$

- a) .557
- b) .690
- c) .0357
- d) .0690

82. $\$14.15 - \$6 =$

- a) \$14.07
- b) \$20.15
- c) \$20.19
- d) \$8.15

83. This model shows:



- a) $\frac{5}{6} + \frac{1}{4} + \frac{3}{4}$
- b) $\frac{2}{7} + \frac{1}{7} + \frac{1}{4}$
- c) $\frac{2}{3} + \frac{1}{4} + \frac{3}{4}$
- d) $\frac{6}{9} + \frac{1}{4} + \frac{3}{4}$

4

84. Which equation has the same solution as $\frac{12}{14} : \frac{4}{7} = \square$

a) $\square \times \frac{11}{7} = \frac{12}{14}$

b) $\frac{4}{7} : \frac{12}{14} = \square$

c) $\frac{12}{14} - \frac{4}{7} = \square$

d) $\square + \frac{4}{7} = \frac{12}{14}$

85. If $\frac{1}{3} \times \frac{2}{5} = \frac{2}{15}$, then

a) $\frac{2}{15} \div \frac{2}{5} = \frac{1}{3}$

b) $\frac{2}{15} \times \frac{2}{5} = \frac{1}{3}$

c) $\frac{2}{5} \div \frac{1}{3} = \frac{2}{15}$

d) $\frac{2}{5} : \frac{2}{15} = \frac{1}{3}$

86. Since $\frac{3}{3}$ is another name for 1, we can say that

$\frac{5}{6} \times \frac{3}{3} = \frac{15}{18}$ or $\frac{5}{6}$ is equivalent to $\frac{15}{18}$.

a) true

b) false

87. $\frac{2}{3} \times \square = \frac{4}{6}$ $\square =$

a) $\frac{3}{3}$

b) $\frac{3}{2}$

c) zero

d) $\frac{2}{2}$

88. $\frac{2}{3} \times \square = 1$ $\square =$

a) $\frac{3}{2}$

b) 1

c) any number

d) $\frac{3}{3}$

89. $0 : \frac{2}{3} = \square$ $\square =$

a) 1

b) zero

c) any number

d) $\frac{3}{2}$

90. Which numeral does not name a unique rational number?

a) $\frac{3}{4}$

b) $\frac{3}{3}$

c) $\frac{7}{0}$

d) $\frac{3}{1}$

91. $\frac{8}{15} \times \frac{3}{4} = \square$

The best short cut to working this problem is:

- a) $\frac{8}{15} \times \frac{1}{4}$ b) $\frac{2}{15} \times \frac{3}{4}$ **c) $\frac{8}{15} \times \frac{1}{4}$**

92. Which is another way of writing this problem? $5\frac{1}{2}$

- a) $(5 \times \frac{1}{2}) + (5 \times 5)$ $\underline{\underline{x 3}}$
 b) $(\frac{1}{2} \times 5) + (\frac{1}{2} \times 5)$
 c) $(5 + 5) \times \frac{1}{2}$
d) $(3 \times 5) + (3 \times \frac{1}{2})$

93. $3 \times 2\frac{1}{8} = 3 \times \square$ $\square =$

a) $\frac{26}{8}$ **b) $\frac{17}{8}$** c) $\frac{8}{17}$ d) $6\frac{5}{8}$

94. $\frac{3}{4} \div \frac{7}{8} = \square$ $\square =$

a) $\frac{28}{24}$ b) $1\frac{1}{6}$ **c) $\frac{6}{7}$** d) $\frac{21}{32}$

95. $6\frac{1}{2} \div 3\frac{1}{4} = \square$ $\square =$

a) 2 b) $2\frac{1}{4}$ c) $21\frac{1}{8}$ d) $\frac{1}{2}$

96.
$$\begin{array}{r} \$21.07 \\ \times \quad 84 \\ \hline \end{array}$$

a) \$1669.88 b) \$167.988 **c) \$1769.88** d) \$176.998

97. $25 \overline{)43.75}$

a) 1.75 b) 19.5 c) 17.5 d) 195

98. 25% of 160 is

a) 40% **b) 40** c) 6.4 d) 64%

99. 11 is what per cent of 50?

a) .125

b) 8

c) 25

d) 125

100. 346 is 50% of what number?

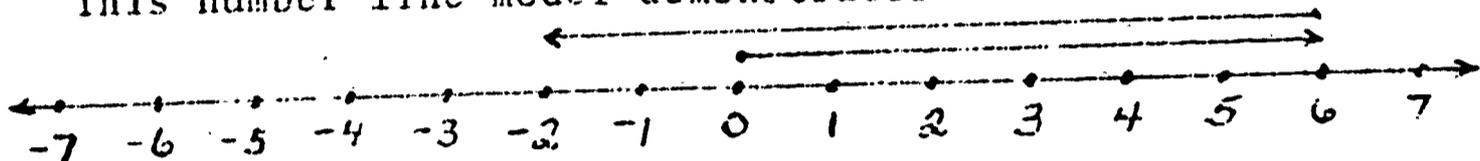
a) 173

b) 6.92

c) 692

d) .693

101. This number line model demonstrates



a) $6 + ^{-}8 = ^{-}2$

b) $^{-}8 + ^{-}6 = ^{-}14$

c) $^{-}2 + 6 = 4$

d) $6 - 2 = 4$

102. $^{-}2 - ^{-}3 = \square$ This problem has the same solution as:

a) $\square + ^{-}3 = ^{-}2$

b) $\square + 3 = 2$

c) $^{-}2 + ^{-}3 = \square$

d) $^{-}2 \times 3 = \square$

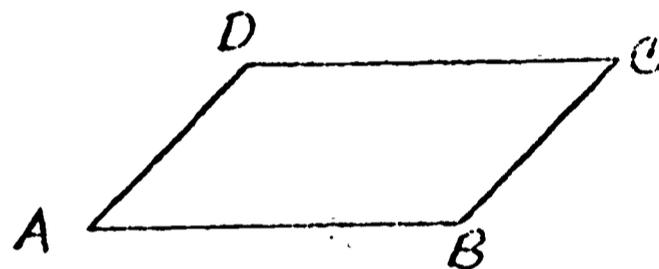
Part II

1. A(n) _____ is the set of points in a simple closed curve composed of the union of five line segments.

- a) rectangle b) pentagon c) hexagon d) octagon

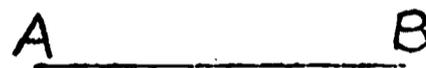
2. Which of the set descriptions below match the figure to the right?

- a) $\overline{AB} \cup \overline{BC} \cup \overline{CA}$
 b) $\overrightarrow{BA} \cup \overrightarrow{BC}$
 c) \overline{AB}
 d) $\overline{AB} \cup \overline{BC} \cup \overline{CD} \cup \overline{DA}$
 e) $\overline{AB} \cup \overline{BC} \cup \overline{CD} \cup \overline{DE} \cup \overline{EF} \cup \overline{FA}$



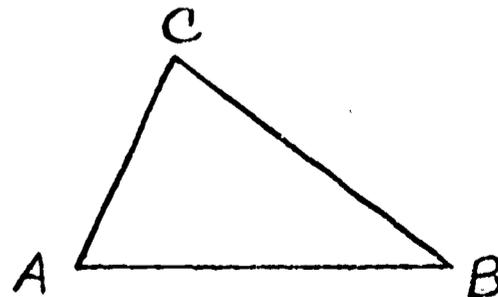
3. Which of the set descriptions below match the figure to the right?

- a) $\overline{AB} \cup \overline{BC} \cup \overline{CA}$
 b) $\overrightarrow{BA} \cup \overrightarrow{BC}$
 c) \overline{AB}
 d) $\overline{AB} \cup \overline{BC} \cup \overline{CD} \cup \overline{DA}$
 e) $\overline{AB} \cup \overline{BC} \cup \overline{CD} \cup \overline{DE} \cup \overline{EF} \cup \overline{FA}$



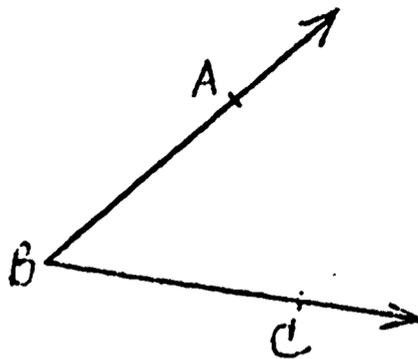
4. Which of the set descriptions below match the figure to the right?

- a) $\overline{AB} \cup \overline{BC} \cup \overline{CA}$
 b) $\overrightarrow{BA} \cup \overrightarrow{BC}$
 c) \overline{AB}
 d) $\overline{AB} \cup \overline{BC} \cup \overline{CD} \cup \overline{DA}$
 e) $\overline{AB} \cup \overline{BC} \cup \overline{CD} \cup \overline{DE} \cup \overline{EF} \cup \overline{FA}$



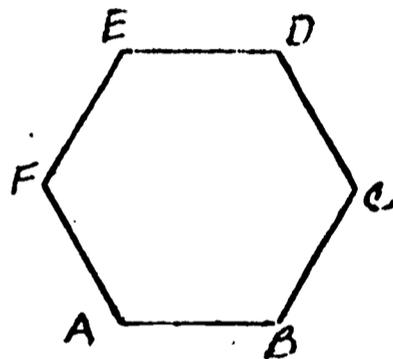
5. Which of the set descriptions below match the figure to the right?

- a) $\overline{AB} \cup \overline{BC} \cup \overline{CA}$
- b) $\overrightarrow{BA} \cup \overrightarrow{BC}$
- c) \overline{AB}
- d) $\overline{AB} \cup \overline{BC} \cup \overline{CD} \cup \overline{DA}$
- e) $\overline{AB} \cup \overline{BC} \cup \overline{CD} \cup \overline{DE} \cup \overline{EF} \cup \overline{FA}$

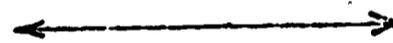


6. Which of the set descriptions below match the figure to the right?

- a) $\overline{AB} \cup \overline{BC} \cup \overline{CA}$
- b) $\overrightarrow{BA} \cup \overrightarrow{BC}$
- c) \overline{AB}
- d) $\overline{AB} \cup \overline{BC} \cup \overline{CD} \cup \overline{DA}$
- e) $\overline{AB} \cup \overline{BC} \cup \overline{CD} \cup \overline{DE} \cup \overline{EF} \cup \overline{FA}$



7. What is the name of the figure to the right?



- a) path
- b) line
- c) ray
- d) line segment

8. What is the name of the figure to the right?



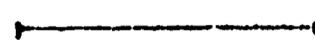
- a) path
- b) line
- c) ray
- d) line segment

9. What is the name of the figure to the right?



- a) path
- b) line
- c) ray
- d) line segment

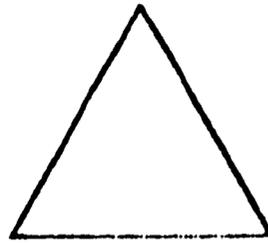
10. What is the name of the figure to the right?



- a) path
- b) line
- c) ray
- d) line segment

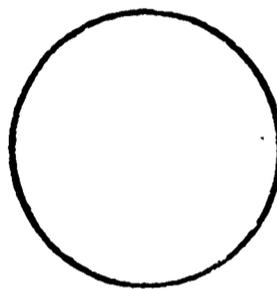
11. What is the name of the figure to the right?

- a) angle
- b) quadrilateral
- c) triangle
- d) pentagon
- e) circle



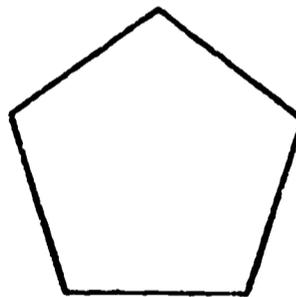
12. What is the name of the figure to the right?

- a) angle
- b) quadrilateral
- c) triangle
- d) pentagon
- e) circle



13. What is the name of the figure to the right?

- a) angle
- b) quadrilateral
- c) triangle
- d) pentagon
- e) circle



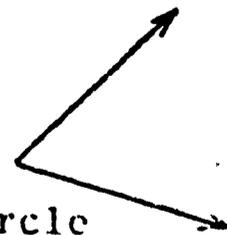
14. What is the name of the figure to the right?

- a) angle
- b) quadrilateral
- c) triangle
- d) pentagon
- e) circle



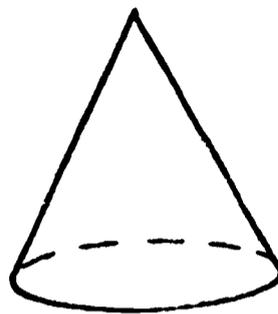
15. What is the name of the figure to the right?

- a) angle
- b) triangle
- c) pentagon
- d) circle



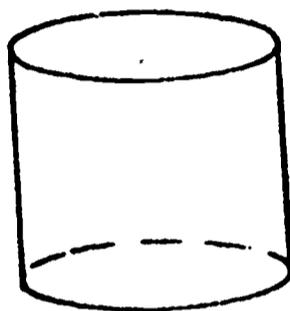
16. What is the name of the space figure to the right?

- a) pyramid
- b) sphere
- c) cylinder
- d) cone
- e) cube



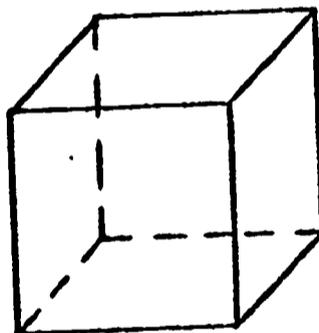
17. What is the name of the space figure to the right?

- a) pyramid
- b) sphere
- c) cylinder
- d) cone
- e) cube



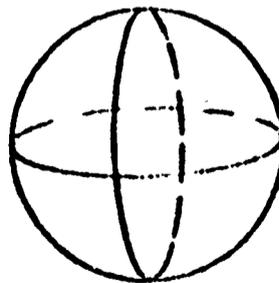
18. What is the name of the space figure to the right?

- a) pyramid
- b) sphere
- c) cylinder
- d) cone
- e) cube



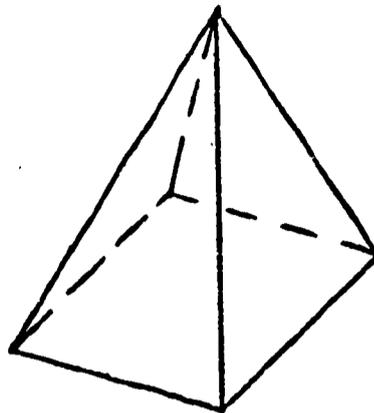
19. What is the name of the space figure to the right?

- a) pyramid
- b) sphere
- c) cylinder
- d) cone
- e) cube



20. What is the name of the space figure to the right?

- a) pyramid
- b) sphere
- c) cylinder
- d) cone
- e) cube



21. The set of all points in space one inch from a given line is a(n) _____.

- a) cylinder
- b) cone
- c) sphere
- d) polyhedron

22. A(n) _____ is the set of all points two inches from a given point in space.

- a) cylinder
- b) cone
- c) plane
- d) sphere

23. _____ lines are lines in the same plane that never meet.

- a) perpendicular
- b) parallel
- c) intersecting

24. Two intersecting lines have _____ point(s) in common.

- a) no
- b) exactly one
- c) more than one

25. Perpendicular lines are intersecting lines which form =

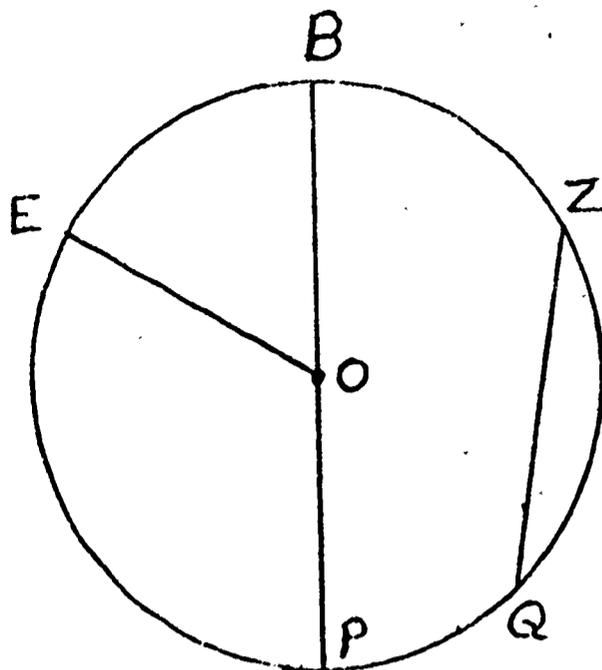
- a) acute angles
- b) obtuse angles
- c) right angles

26. The _____ of a polygon is equal to the sum of its sides.

- a) area
- b) volume
- c) perimeter
- d) diagonal

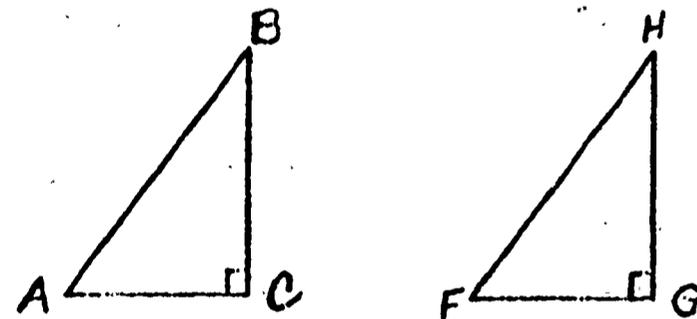
27. Congruent geometric figures have the same

- a) size only
- b) shape only
- c) shape and size



28. In the circle above, point O is called the _____
 a) radius b) diameter c) chord d) center e) arc
29. In the circle above, \overline{ZQ} is called a(n) _____.
 a) radius b) diameter c) chord d) center e) arc
30. In the circle above, \overline{BP} is called a(n) _____.
 a) radius b) center c) diagonal d) diameter e) arc
31. In the circle above, \overline{OE} is called a(n) _____.
 a) radius b) chord c) diameter d) arc e) center
32. In the circle above, \widehat{ZQ} is called a(n) _____.
 a) radius b) chord c) diameter d) center e) arc

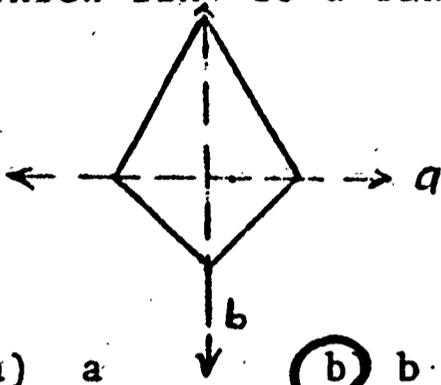
33.



If $\triangle ABC \cong \triangle FGH$, which of the following is NOT true?

- a) $\overline{AC} \cong \overline{FG}$
 b) $\angle ABC \cong \angle FHG$
 c) $\angle G \cong \angle A$
 d) $\overline{BC} \cong \overline{HG}$

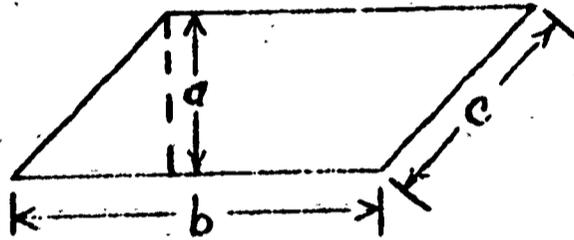
34.. Which line is a line of symmetry?



- a) a b c) both a and b

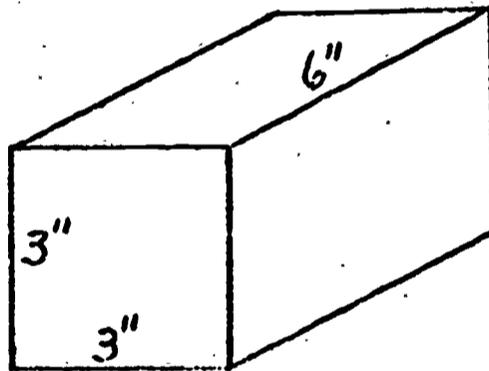
35. The formula for finding the area of any parallelogram is

- a) $A = \frac{1}{2} \times b \times a$
 b) $A = b \times c$
 c) $A = b \times a$
 d) $A = a + b + c$



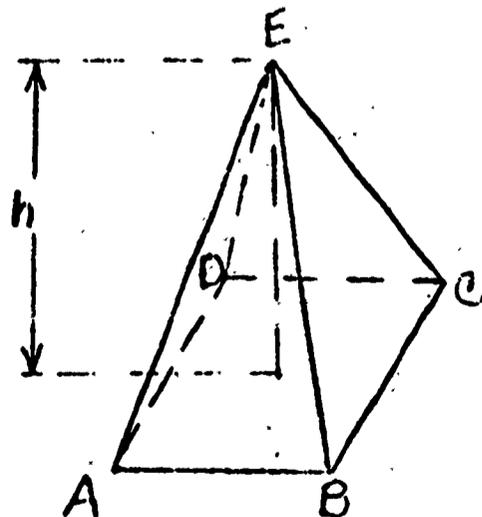
36. The volume of the right rectangular prism shown is

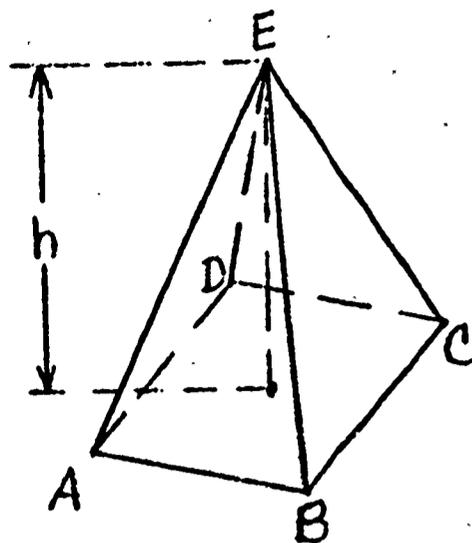
- a) 90 square inches
 b) 54 cubic inches
 c) 12 cubic inches
 d) 48 cubic inches



37. In the pyramid to the right, $\square ABCD$ is _____.

- a) a vertex
 b) an edge
 c) the base
 d) a lateral surface
 e) the altitude





38. In the pyramid above, \overline{EB} is _____.
- a) a vertex
 - b) an edge
 - c) the base
 - d) a lateral surface
 - e) the altitude
39. In the pyramid above, C is _____.
- a) a vertex
 - b) an edge
 - c) the base
 - d) a lateral surface
 - e) the altitude
40. In the pyramid above, $\triangle BEC$ is _____.
- a) a vertex
 - b) an edge
 - c) the base
 - d) a lateral surface
 - e) the altitude
41. In the pyramid above, h is _____.
- a) a vertex
 - b) an edge
 - c) the base
 - d) the altitude

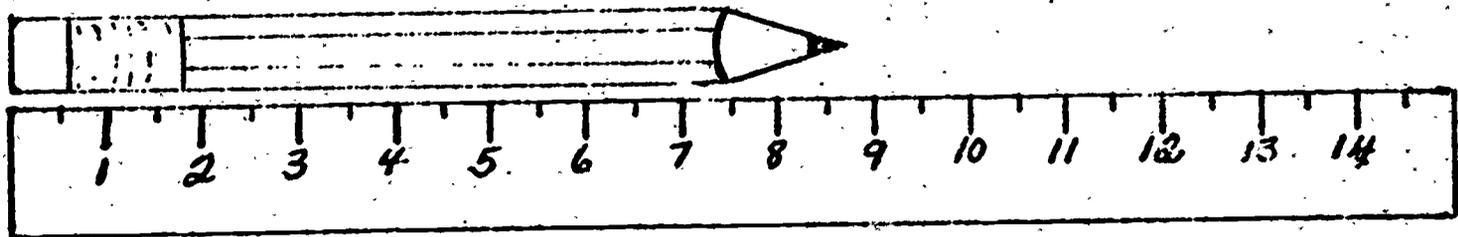
42. An angle can be measured by using a _____.
a) straightedge b) compass **c) protractor** d) yardstick

43. A field is 128.246 feet long. Correct to the nearest tenth of a foot, this is _____.
a) 130 feet b) 128 feet c) 128.25 feet **d) 128.2 feet**

44. If the measure of \overline{AB} is given as $2\frac{1}{2}$ inches, correct to the nearest half inch, we know it is _____.
a) between $2\frac{1}{4}$ inches and $2\frac{3}{4}$ inches.
b) less than $2\frac{1}{2}$ inches.
c) more than $2\frac{1}{2}$ inches.
d) between $2\frac{1}{2}$ in. and 3 inches.

45. The weight of a human being is best expressed in what type of units?
a) carats **b) pounds** c) ounces d) hundredweight

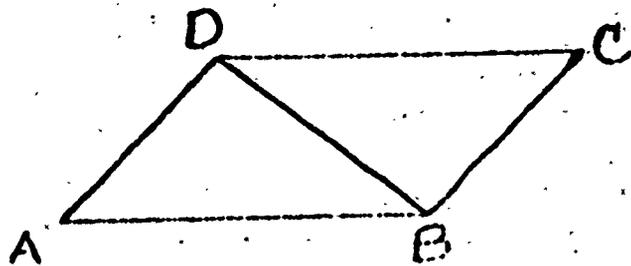
46. To the nearest centimeter, what is the length of the pencil shown below?

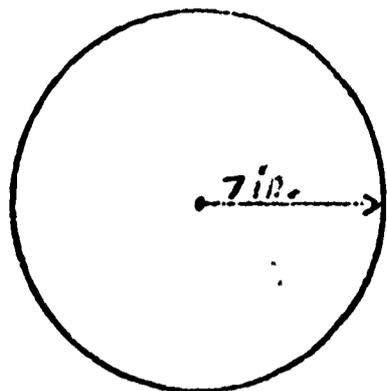


a) 8 **b) 9** c) 10 d) 84

47. If the area of $\square ABCD$ is 60 square inches, what is the area of $\triangle ABD$?

a) 20 sq. in.
b) 30 sq. in.
c) 60 sq. in.
d) 15 sq. in.

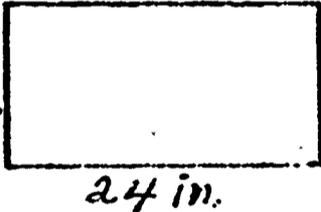
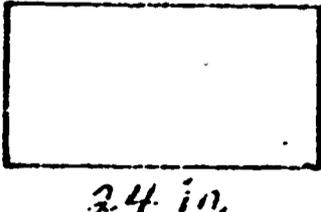




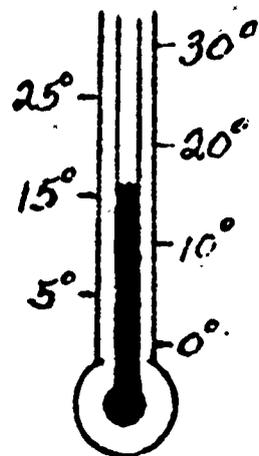
$$\text{area} = \pi \times r^2$$

$$\text{circumference} = \pi \times d$$

(Use $\frac{22}{7}$ for π)

48. The area of the circle above is
 a) 44 inches b) 22 square in. c) 44 sq. in. **d) 154 sq. in.**
49. The circumference of the circle above is
a) 44 in. b) 22 in. c) 44 sq. in. d) 154 sq. in.
50. If a football game begins on live television at 1:00P.M. in New York City, at what time should you turn on your set in Las Vegas to see the kickoff?
 a) 4:00 P.M. b) 4:00 A.M. **c) 10:00 A.M.** d) 10:00 P.M.
51. Find the area of the figure to the right.
 a) 74 square inches
 b) 74 inches
c) 312 square inches 13 in.
 d) 312 inches
- 
52. Find the perimeter of the figure to the right.
 a) 74 square inches
b) 74 inches
 c) 312 square inches 13 in.
 d) 312 inches
- 
53. In comparing the length of the meter with the length of the yard, we say that a meter is _____ a yard.
 a) the same as b) less than **c) greater than** d) equal to

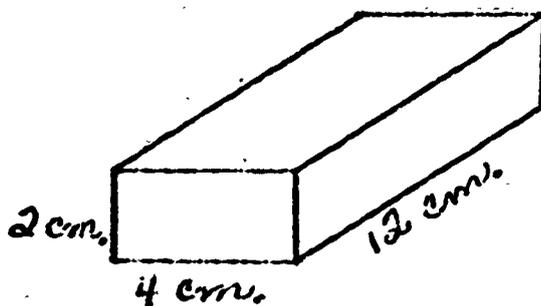
54. This thermometer shows about



- a) 12° **b) 15°** c) 10° d) 32°

55. Find the surface area of the figure at the right.

- a) 20 cubic centimeters
b) 96 cubic centimeters
c) 160 square centimeters
d) 20 square centimeters



56. $5 \text{ yds. } 1 \text{ ft. } 3 \text{ in.}$
 $+ 3 \text{ yds. } 2 \text{ ft. } 3 \text{ in.}$

- a) 9 yd, 3 ft, 6 in.
b) 9 yd, 6 in.
c) 9 yd, 1 ft, 12 in.
d) 8 yd, 1 ft.

57. $6 \text{ lb. } 4 \text{ oz.}$
 $- 3 \text{ lb. } 10 \text{ oz.}$

- a) 3 lb. 10 oz.
b) 3 lb. 5 oz.
c) 2 lb. 10 oz.
d) 9 oz. 14 oz.

58. $1 \text{ gal. } + 2\frac{1}{2} \text{ qt. } =$

- a) $3\frac{1}{2} \text{ pt.}$ b) $6\frac{1}{2} \text{ pt.}$ c) 9 pt. **d) 13 pt.**

59. An airplane flies at an average speed of 720 miles per hour. How many miles per minute is this?

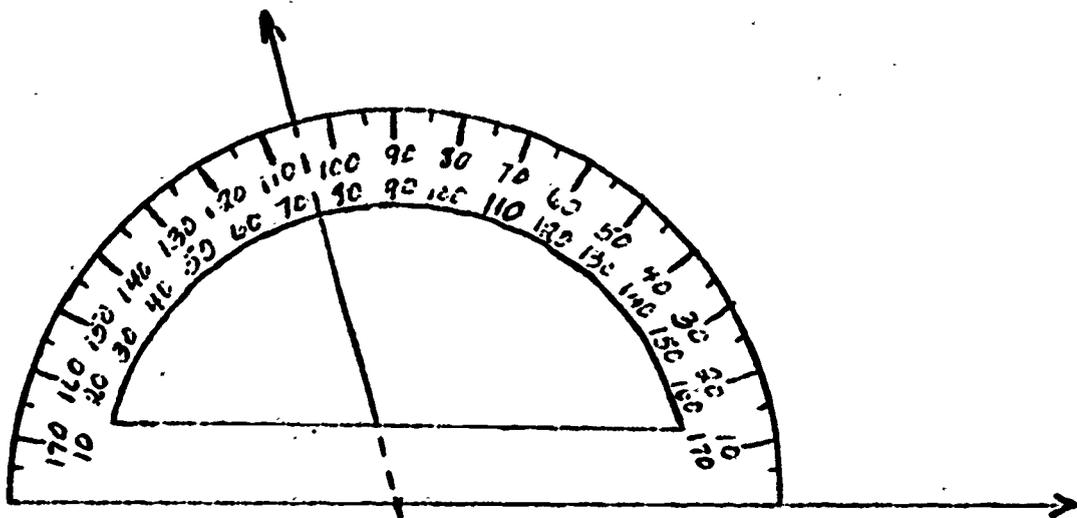
- a) 12 b) 7.2 c) 8,640 d) 720

60. $C^{\circ} = \frac{5}{9} x (F^{\circ} - 32^{\circ})$ ← Use this formula.

A temperature of 59° Fahrenheit is _____ centigrade.

- a) about 50 b) 48 c) 15 d) below zero

61. The diagram below shows a protractor that is placed on an angle. How many degrees does the angle measure?

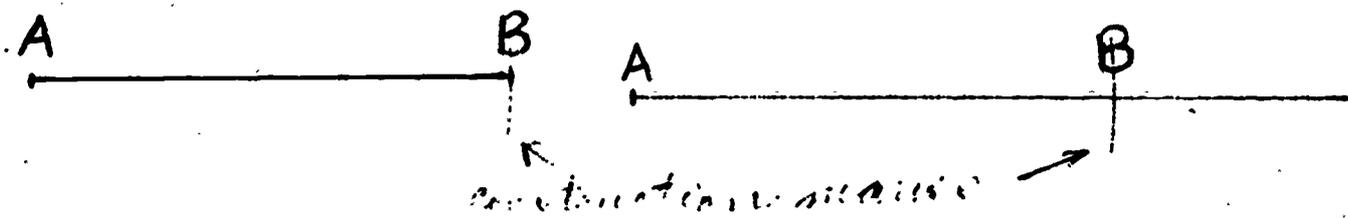


- a) 105 b) 70 c) 75 d) 110

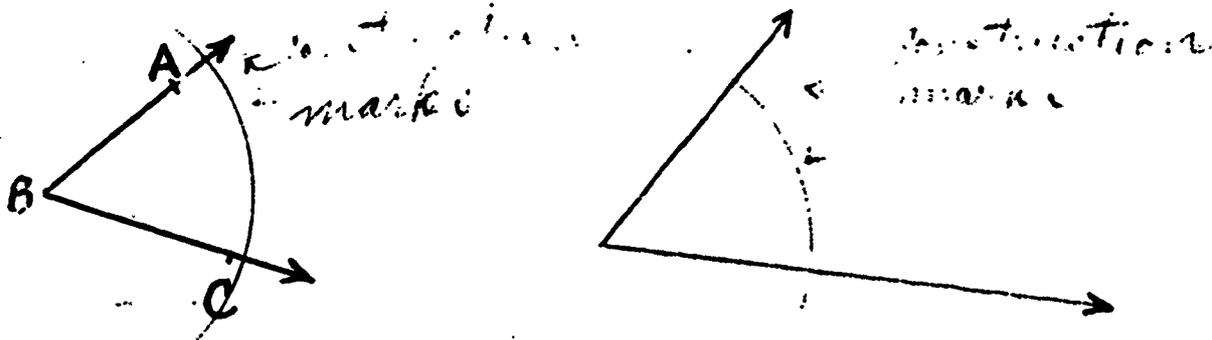
Part III

Directions: You are to make several geometric constructions on this page and on the next two pages. You should use only a straight edge, pencil and in some cases, a compass. Do Not erase the marks that you make on the paper as you do the constructing. These marks show whether or not you did the construction correctly.

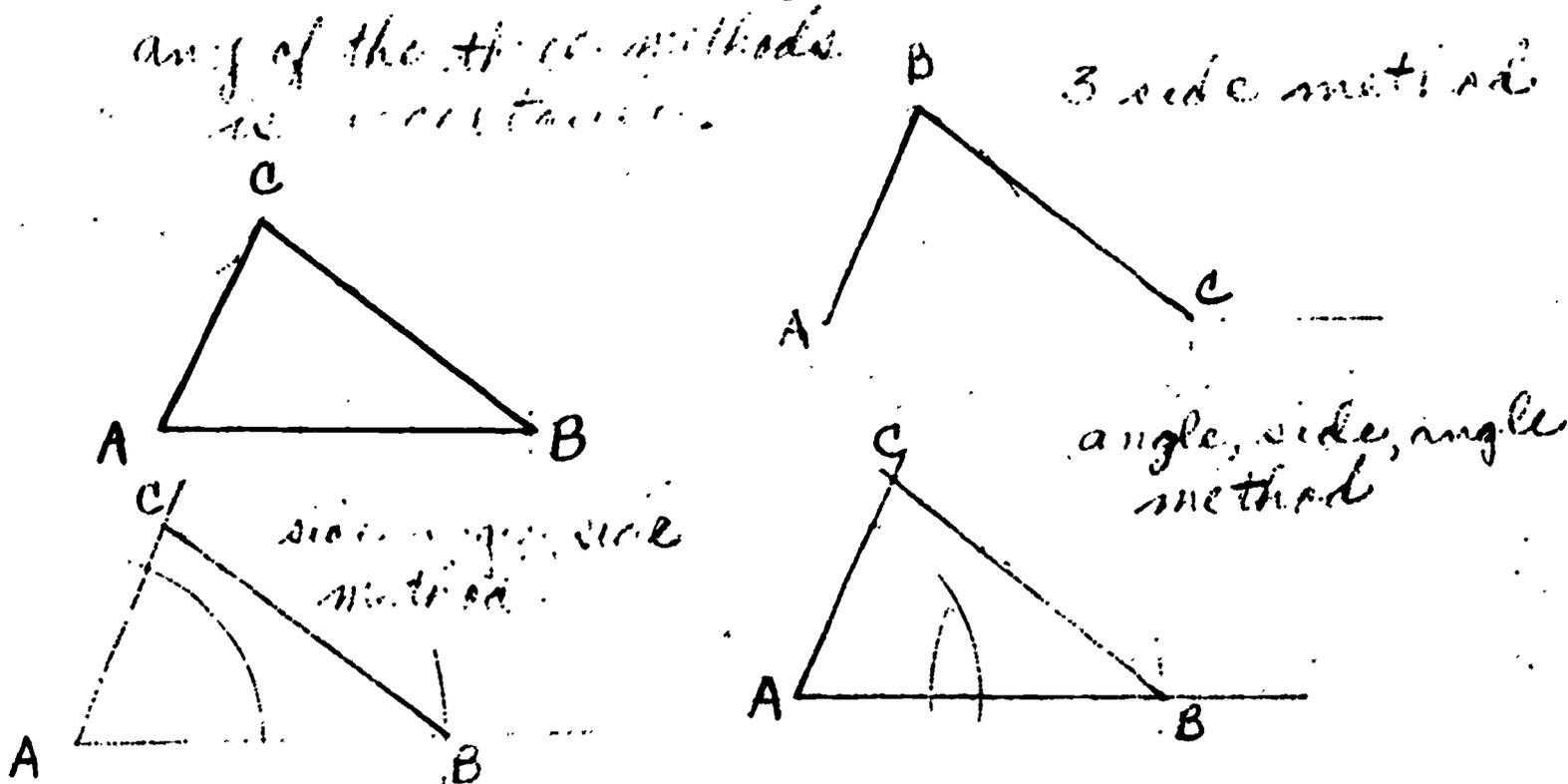
1. Construct a line segment in the box that is congruent to AB.



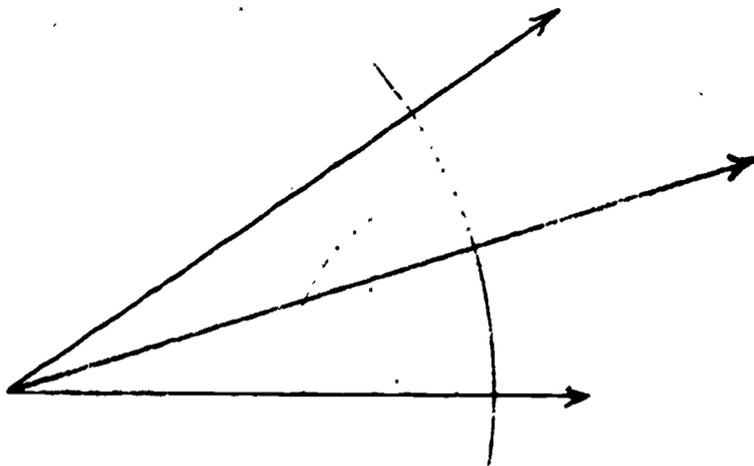
2. Construct an angle in the box that is congruent to $\angle ABC$.



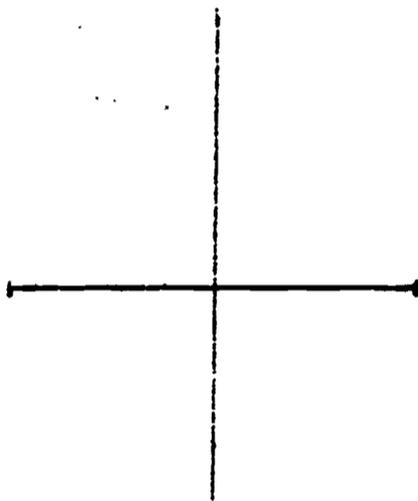
3. Construct a triangle in the box that is congruent to ABC and then label the points A, B and C on on your triangle.



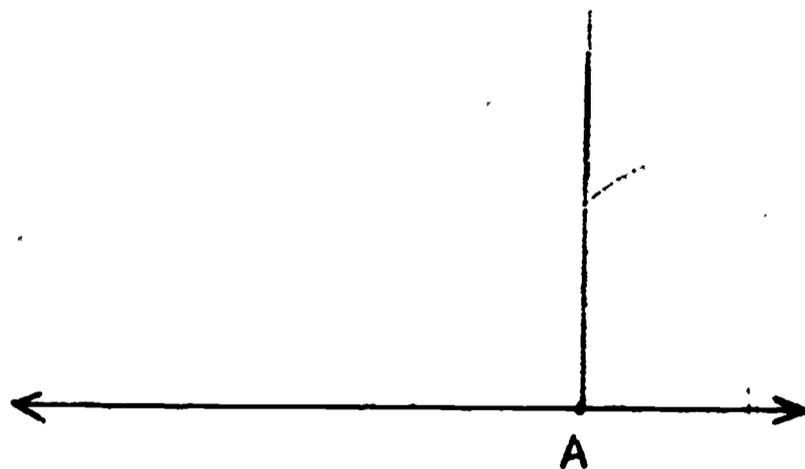
4. Bisect the angle below.



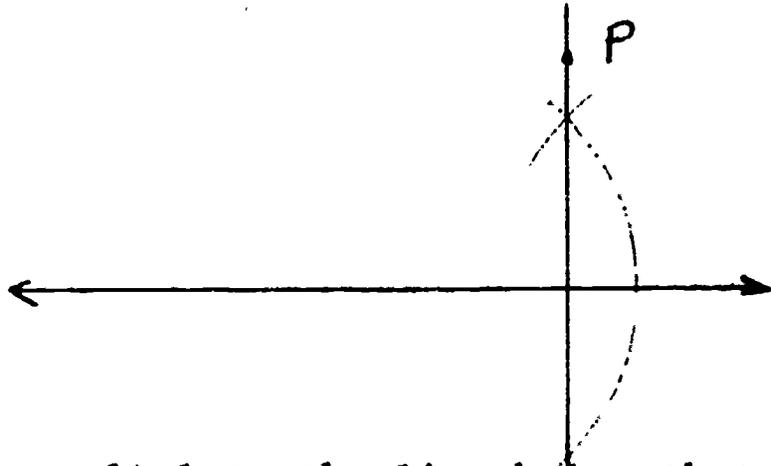
5. Construct the perpendicular bisector of the line segment below.



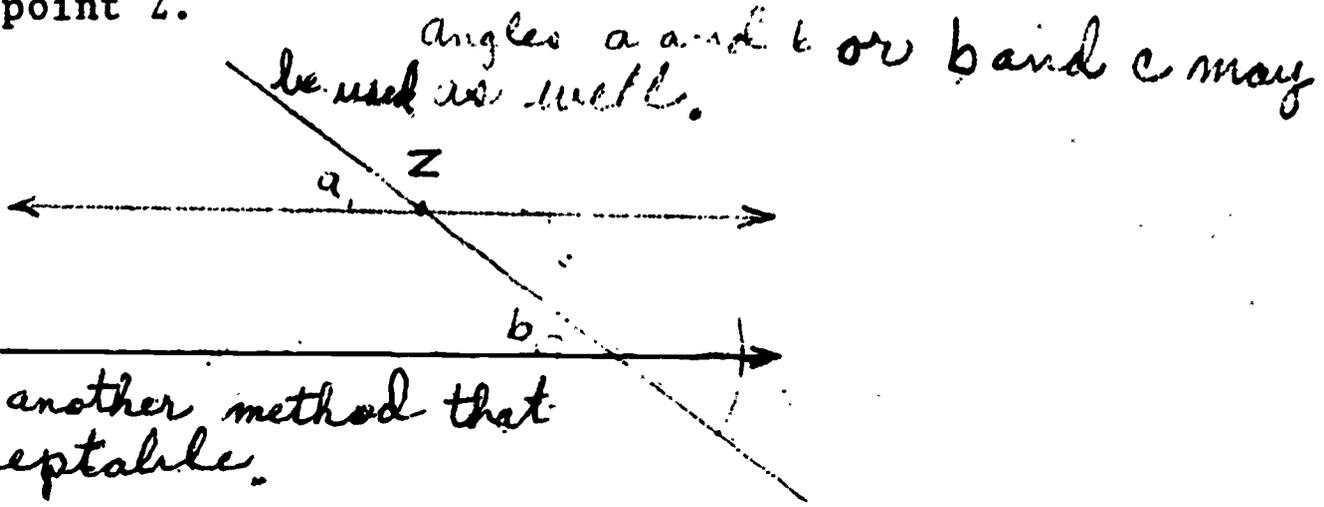
6. Construct a perpendicular to the line below from point A.



7. Construct a perpendicular to the line below that passes through point P.



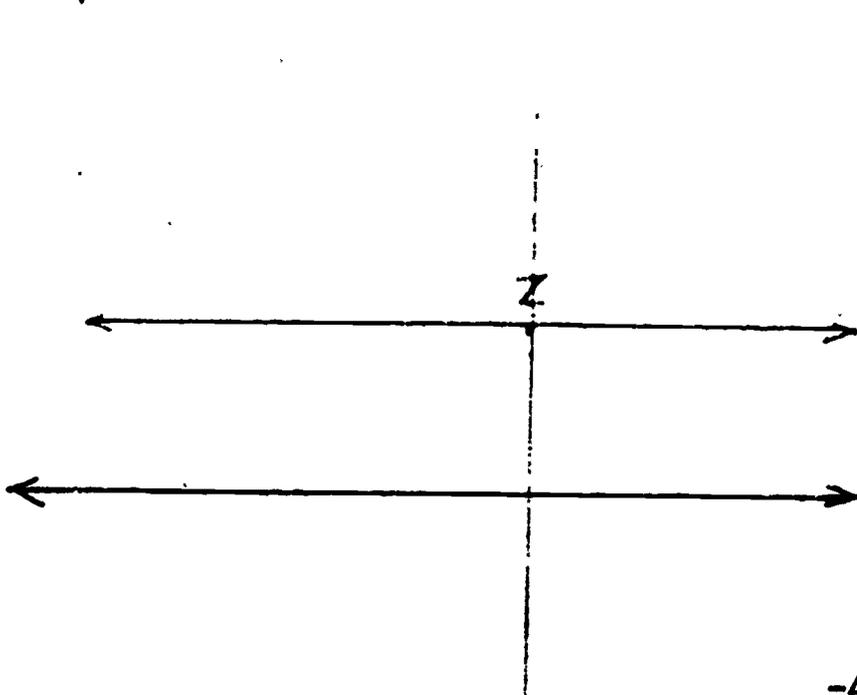
8. Construct a line parallel to the line below that passes through point Z.



Note: Below is another method that is acceptable.

9. Using only a compass, construct a circle below that has its center at C and a radius congruent to the one shown at the left.

radius



ADDITION AND SUBTRACTION TEST

(1)
$$\begin{array}{r} 9 \\ +2 \\ \hline 11 \end{array}$$

(2)
$$\begin{array}{r} 8 \\ +7 \\ \hline 15 \end{array}$$

(3)
$$\begin{array}{r} 7 \\ +6 \\ \hline 13 \end{array}$$

(4)
$$\begin{array}{r} 8 \\ +5 \\ \hline 13 \end{array}$$

(5)
$$\begin{array}{r} 9 \\ +4 \\ \hline 13 \end{array}$$

(6)
$$\begin{array}{r} 4 \\ +8 \\ \hline 12 \end{array}$$

(7)
$$\begin{array}{r} 7 \\ +4 \\ \hline 11 \end{array}$$

(8)
$$\begin{array}{r} 8 \\ +3 \\ \hline 11 \end{array}$$

(9)
$$\begin{array}{r} 5 \\ +7 \\ \hline 12 \end{array}$$

(10)
$$\begin{array}{r} 3 \\ +9 \\ \hline 12 \end{array}$$

(11)
$$\begin{array}{r} 6 \\ +8 \\ \hline 14 \end{array}$$

(12)
$$\begin{array}{r} 2 \\ +8 \\ \hline 10 \end{array}$$

(13)
$$\begin{array}{r} 14 \\ -9 \\ \hline 5 \end{array}$$

(14)
$$\begin{array}{r} 13 \\ -8 \\ \hline 5 \end{array}$$

(15)
$$\begin{array}{r} 11 \\ -6 \\ \hline 5 \end{array}$$

(16)
$$\begin{array}{r} 12 \\ -3 \\ \hline 9 \end{array}$$

(17)
$$\begin{array}{r} 18 \\ -9 \\ \hline 9 \end{array}$$

(18)
$$\begin{array}{r} 15 \\ -7 \\ \hline 8 \end{array}$$

(19)
$$\begin{array}{r} 11 \\ -8 \\ \hline 3 \end{array}$$

(20)
$$\begin{array}{r} 13 \\ -4 \\ \hline 9 \end{array}$$

(21)
$$\begin{array}{r} 10 \\ -7 \\ \hline 3 \end{array}$$

(22)
$$\begin{array}{r} 14 \\ -5 \\ \hline 9 \end{array}$$

(23)
$$\begin{array}{r} 11 \\ -2 \\ \hline 9 \end{array}$$

(24)
$$\begin{array}{r} 13 \\ -6 \\ \hline 7 \end{array}$$

Time limit: 4 minutes

MULTIPLICATION TEST

(25)	$\begin{array}{r} 5 \\ \times 5 \\ \hline 25 \end{array}$	(26)	$\begin{array}{r} 9 \\ \times 4 \\ \hline 36 \end{array}$	(27)	$\begin{array}{r} 8 \\ \times 6 \\ \hline 48 \end{array}$	(28)	$\begin{array}{r} 7 \\ \times 0 \\ \hline 0 \end{array}$	(29)	$\begin{array}{r} 4 \\ \times 8 \\ \hline 32 \end{array}$	(30)	$\begin{array}{r} 6 \\ \times 9 \\ \hline 54 \end{array}$	(31)	$\begin{array}{r} 7 \\ \times 4 \\ \hline 28 \end{array}$	(32)	$\begin{array}{r} 0 \\ \times 6 \\ \hline 0 \end{array}$
------	---	------	---	------	---	------	--	------	---	------	---	------	---	------	--

(33)	$\begin{array}{r} 2 \\ \times 4 \\ \hline 8 \end{array}$	(34)	$\begin{array}{r} 6 \\ \times 6 \\ \hline 36 \end{array}$	(35)	$\begin{array}{r} 7 \\ \times 7 \\ \hline 49 \end{array}$	(36)	$\begin{array}{r} 5 \\ \times 9 \\ \hline 45 \end{array}$	(37)	$\begin{array}{r} 3 \\ \times 7 \\ \hline 21 \end{array}$	(38)	$\begin{array}{r} 2 \\ \times 2 \\ \hline 4 \end{array}$	(39)	$\begin{array}{r} 3 \\ \times 9 \\ \hline 27 \end{array}$	(40)	$\begin{array}{r} 7 \\ \times 2 \\ \hline 14 \end{array}$
------	--	------	---	------	---	------	---	------	---	------	--	------	---	------	---

(41)	$\begin{array}{r} 4 \\ \times 3 \\ \hline 12 \end{array}$	(42)	$\begin{array}{r} 6 \\ \times 8 \\ \hline 48 \end{array}$	(43)	$\begin{array}{r} 3 \\ \times 2 \\ \hline 6 \end{array}$	(44)	$\begin{array}{r} 2 \\ \times 8 \\ \hline 16 \end{array}$	(45)	$\begin{array}{r} 5 \\ \times 4 \\ \hline 20 \end{array}$	(46)	$\begin{array}{r} 9 \\ \times 2 \\ \hline 18 \end{array}$	(47)	$\begin{array}{r} 7 \\ \times 6 \\ \hline 42 \end{array}$	(48)	$\begin{array}{r} 6 \\ \times 5 \\ \hline 30 \end{array}$
------	---	------	---	------	--	------	---	------	---	------	---	------	---	------	---

(49)	$\begin{array}{r} 8 \\ \times 7 \\ \hline 56 \end{array}$	(50)	$\begin{array}{r} 7 \\ \times 5 \\ \hline 35 \end{array}$	(51)	$\begin{array}{r} 3 \\ \times 3 \\ \hline 9 \end{array}$	(52)	$\begin{array}{r} 5 \\ \times 2 \\ \hline 10 \end{array}$	(53)	$\begin{array}{r} 7 \\ \times 1 \\ \hline 7 \end{array}$	(54)	$\begin{array}{r} 8 \\ \times 2 \\ \hline 16 \end{array}$	(55)	$\begin{array}{r} 8 \\ \times 3 \\ \hline 24 \end{array}$	(56)	$\begin{array}{r} 4 \\ \times 6 \\ \hline 24 \end{array}$
------	---	------	---	------	--	------	---	------	--	------	---	------	---	------	---

(57)	$\begin{array}{r} 9 \\ \times 9 \\ \hline 81 \end{array}$	(58)	$\begin{array}{r} 5 \\ \times 7 \\ \hline 35 \end{array}$	(59)	$\begin{array}{r} 8 \\ \times 8 \\ \hline 64 \end{array}$	(60)	$\begin{array}{r} 6 \\ \times 3 \\ \hline 18 \end{array}$	(61)	$\begin{array}{r} 4 \\ \times 4 \\ \hline 16 \end{array}$	(62)	$\begin{array}{r} 3 \\ \times 5 \\ \hline 15 \end{array}$	(63)	$\begin{array}{r} 1 \\ \times 4 \\ \hline 4 \end{array}$	(64)	$\begin{array}{r} 9 \\ \times 6 \\ \hline 54 \end{array}$
------	---	------	---	------	---	------	---	------	---	------	---	------	--	------	---

Time limit: 4 minutes

DIVISION TEST

(65) $3 \overline{)9^3}$

(66) $6 \overline{)12^2}$

(67) $5 \overline{)35^7}$

(68) $8 \overline{)64^8}$

(69) $1 \overline{)8}$

(70) $5 \overline{)45^9}$

(71) $2 \overline{)18^9}$

(72) $7 \overline{)0}$

(73) $7 \overline{)42^6}$

(74) $4 \overline{)24^6}$

(75) $2 \overline{)10^5}$

(76) $9 \overline{)54^6}$

(77) $4 \overline{)16^4}$

(78) $2 \overline{)4^2}$

(79) $7 \overline{)21^3}$

(80) $9 \overline{)72^8}$

(81) $5 \overline{)20^4}$

(82) $3 \overline{)24^8}$

(83) $2 \overline{)6^3}$

(84) $9 \overline{)81^9}$

(85) $6 \overline{)36^6}$

(86) $3 \overline{)18^6}$

(87) $5 \overline{)15^3}$

(88) $9 \overline{)36^4}$

(89) $7 \overline{)49^7}$

(90) $4 \overline{)32^8}$

(91) $3 \overline{)12^4}$

(92) $7 \overline{)63^9}$

(93) $8 \overline{)40^5}$

(94) $9 \overline{)27^3}$

(95) $2 \overline{)14^7}$

(96) $8 \overline{)16^2}$

(97) $4 \overline{)20^5}$

(98) $6 \overline{)48^8}$

(99) $7 \overline{)28^4}$

(100) $8 \overline{)56^7}$

(101) $5 \overline{)25^5}$

(102) $3 \overline{)21^7}$

(103) $4 \overline{)8^2}$

(104) $6 \overline{)30^5}$