This concluding volume of a five-volume project consists of a case study which is designed to elicit from the teacher a performance based on the experience gained (from the previous volumes) in writing prescriptions. The teacher is furnished with data on a student designated John which include a placement profile, placement test, unit record test, analysis of John's behavior, unit pretest and posttest. The teacher is expected to analyze the data and use them in preparing a prescription for John. (Go)
TEACHING IN IPI
TEACHING IN IPI

(A Program of Teacher Preparation)

by

Claire A. Moshy
Research Associate

Volume 5

Research for Better Schools, Inc.
Regional Educational Laboratory
James W. Becker, Executive Director
Robert G. Scanlon, Director of Instructional Systems
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Section IV
Developing a Prescription

Part 2 (Continued)
Section IV

DEVELOPING A PRESCRIPTION

CASE STUDY – TYPE 4

JOHN TANES
C-COP
Directions

This case study is organized in a format that draws upon your experience in writing prescriptions.

The following data is provided for you:
- Placement Profile.........................page 3
- Placement Test - Level C....................page 4
- Unit Test Record..............................pages 5-6
- Analysis of Student Behavior................pages 7-8
- Unit Pretest - C-COP.........................page 10-13
- Unit Posttest - C-COP.......................page 136-141

You will analyze this information and use it to write the unit prescription for John in C-COP.

Use the STS booklets for Skills 1-6 to simulate John's work on the skill sheets you prescribe. (pages 17-130)

Your prescriptions should reflect the variety of instructional decisions and settings that you have been working with to this point.

It will be helpful if you keep a record of your instructional decisions as you work through this case study. The form of this record is your decision.

Your prescriptions should be recorded on the blank Prescription Sheets located at the back of this case study. (pages 137-200)
John's Placement Profile is on page 3.

It indicates the units in which John needed work. Study the C-Level Placement Test on page 4.

Refer to the Unit Test Record on pages 5-6. It shows John's unit mastery to this point.

Use the Unit Test Record and the Placement Profile as a guide to assigning the next Pretest to John.
## ARITHMETIC PLACEMENT SCORE PROFILE

### STUDENT NAME
John Tones

### SCHOOL STAMP
P. 2-3

### GRADE
3

### ROOM
2

### KEYPUNCH SAMPLE
TO P. 78

### MATHEMATICS AREA

<table>
<thead>
<tr>
<th>Mathematics Area</th>
<th>Date of Test</th>
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### MAX. PTS. and SCORE

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<tr>
<td>ADDITION AND SUBTRACTION</td>
<td>10</td>
<td>9</td>
<td>90</td>
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</table>
Skill 4 — Directions: Write > or < in the □ to make a true number sentence.

2 PENNIES + 3 PENNIES  □ 5 PENNIES − 1 PENNY

18 INCHES − 7 INCHES  □ 15 INCHES − 8 INCHES

Skill 4 — Directions: Write = or ≠ in the □ to make a true number sentence.

7 DOZEN + 4 DOZEN  ≠ 3 DOZEN + 2 DOZEN

14 + 3  ≠ 18 − 1

11 − 9  = 18 − 16
# Mathematics Unit Test Record

## Name: John Tanes
## Number: 4444

<table>
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<tr>
<th>Numeration (B1)</th>
<th>Level 8</th>
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### Placed at Level C
- *Max.*: Score
- *Date:*

### Place Value (B2)
- *Max.*: Score
- *Date:*

### Addition (B3)
- *Max.*: Score
- *Date:*

### Subtraction (B4)
- *Max.*: Score
- *Date:*

### Multiplication (B5)
- *Max.*: Score
- *Date:*

### Division (B6)
- *Max.*: Score
- *Date:*

### Combination of Processes (B7)
- *Max.*: Score

---

**Update and place in student folder.**
### Mathematics Unit Test Record

**Name:** John Jones  
**Number:** 4444  
**Class:** 3-2

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</tr>
</tbody>
</table>

**Update and place in student folder.**
Analysis of Student Behavior

1. The behaviors which will help John's learning...

   He is an enthusiastic learner and is able to apply himself to a learning situation until he has mastered it.

2. The behaviors which will hamper John's learning...

   His reading ability is not equal to his math skill. He has difficulty learning from printed materials.

3. The new behaviors which John will learn in conjunction with the IPI math learnings...

   He needs to increase his vocabulary skills.
Describe how your prescriptions will attempt to reflect these behaviors...

1. 

2. 

3. 

This is a copy of the Pretest completed by John and corrected by the Aide. Record (in the role of Aide) the Pretest results on the first Prescription Sheet in your packet.

Analyze the Pretest results and write the first prescription.
LEVEL C
COMBINATION OF PROCESSES (07)

Developed by The Testing and Evaluation Staff, Learning Research and Development Center, University of Pittsburgh; Richard Cox, Ph.D., Director

Appleton-Century-Crofts Division of Meredith Publishing Company

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DEVELOPMENTAL EDITION
Directions: Add or subtract, as indicated by the sign.

\[
\begin{align*}
37 + 22 & = 59 \\
63 - 20 & = 43 \\
45 + 34 & = 78 \times \\
17 - 12 & = 5 \\
62 - 52 & = 10 \\
48 + 21 & = 27 \times
\end{align*}
\]
Directions: Add or subtract.

4 yards + 5 yards = 9 yards

12 cents + 5 cents = 7 cents

18 dozen - 6 dozen = 12 dozen

4 feet + 6 feet = 10 feet

13 yards - 2 yards = 12 yards

6 inches + 7 inches = 13 inches

8 feet - 5 feet = 13 feet
Directions: Solve each problem.

John has 10 pennies. Judy has 5 pennies. How many pennies have John and Judy together? **15** pennies

Susan has a ruler 12 inches long. Her doll’s bed is 6 inches longer than the ruler. How many inches long is her doll’s bed? **18** inches

Jim hiked 6 miles in the morning and 8 miles in the afternoon. How many miles farther did Jim hike in the afternoon than in the morning? **2** miles

Dick had to miss 5 days of school one week and 4 days the next week. How many days of school did Dick miss during the two weeks? **9** days
Directions: Put >, <, or = in each circle to make a true number sentence.

5 weeks + 4 weeks \(\equiv\) 10 weeks - 1 week

15 pennies - 4 pennies \(>\) 5 pennies + 5 pennies

9 yards - 3 yards \(\equiv\) 2 yards + 4 yards

3 feet + 4 feet \(<\) 6 feet - 5 feet \(\times\)

6 miles + 7 miles \(\equiv\) 18 miles - 4 miles \(\times\)

Directions: Put = or \(\neq\) in each circle to make a true number sentence.

8 inches - 2 inches \(\equiv\) 10 inches - 8 inches \(\times\)

6 dimes + 3 dimes \(\equiv\) 11 dimes - 2 dimes
Directions: Put + or − in each circle to make a true number sentence.

- 8 5 = 13
- 9 + 7 = 2
- 9 + 3 = 6
- 11 − 3 = 14
- 6 − 4 = 10
Directions: Fill in the blanks to make each number sentence true.

\[ 5 - 1 = 2 + \underline{3} \quad \times \]

\[ 4 - \underline{2} = 2 + 1 \quad \times \]

\[ 6 - \underline{2} = 4 + 2 \quad \times \]

\[ 1 + 6 = \underline{6} - 3 \quad \times \]

\[ \underline{9} + 2 = 9 - 4 \quad \times \]
TO THE STUDENT

Find the sums and differences.

\[
\begin{align*}
32 & \quad + \quad 45 \\
\hline
\end{align*}
\]

\[
\begin{align*}
94 & \quad - \quad 51 \\
88 & \quad - \quad 36 \\
\hline
23 & \quad + \quad 66 \\
\end{align*}
\]

You will practice these types of problems in this booklet.

Answer

\[
\begin{array}{ccc}
77 \\
43 & 52 \\
39 \\
\end{array}
\]
When you add, always add the **ones** column first, then the **tens** column.

**EXAMPLE**

\[
\begin{array}{c}
36 \\
+ 21 \\
\hline
57
\end{array}
\]

Find the sums and write the numerals in the boxes.

<table>
<thead>
<tr>
<th></th>
<th>ones</th>
<th>tens</th>
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<tbody>
<tr>
<td>43</td>
<td>43</td>
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<tr>
<td>+ 52</td>
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**TOTAL POINTS**

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</table>

**NUMBER CORRECT**

12
When you subtract, always subtract the ones column first, then the tens column.

EXAMPLE

\[
\begin{array}{c}
47 \\
-34 \\
\hline
13
\end{array}
\]

Do the subtraction problem and write the numerals in the boxes.

\[
\begin{array}{c}
88 \\
-56 \\
\hline
32
\end{array}
\]

\[
\begin{array}{c}
96 \\
-53 \\
\hline
43
\end{array}
\]

\[
\begin{array}{c}
49 \\
-27 \\
\hline
22
\end{array}
\]
Find the sums and differences.

\[
\begin{array}{ccc}
9 & +3 & 17 \\
\hline
12 & 59 & 6 \\
\hline
18 & +42 & 17 \\
\hline
11 & 59 & 6 \\
\hline
40 & +48 & 50 \\
\hline
90 & 89 & 99 \\
\hline
40 & 17 & 86 \\
\hline
+50 & -6 & 3 \\
\hline
90 & 11 & 83 \\
\hline
\end{array}
\]

TOTAL POINTS NUMBER CORRECT
9

LEVEL UNIT SKILL PAGE
C 07 1 3
Find the missing sums and differences.

\[10 + 6 = ?\]
\[41 + 21 = ?\]
\[30 - 10 = \]
\[18 - 6 = ?\]
\[20 + 31 = ?\]
\[12 + 30 = \]
\[88 - 7 = \]
\[90 + 6 = \]
\[42 = \]
\[81 = \]
\[96 = \]
\[18 - 11 = \]
\[40 + 23 = \]
\[7 = \]
\[63 = \]
\[65 - 12 = ?\]
\[22 - 11 = \]
\[49 + 10 = ?\]
\[54 + 11 = ?\]
\[81 + 8 = ?\]
Find the sums and differences.

\[\begin{array}{ccc}
40 & 36 & 17 \\
+40 & -11 & +70 \\
80 & 25 & 87 \\
\end{array}\]

\[\begin{array}{ccc}
20 - 10 = 10 & 38 + 10 = 48 & 46 + 3 = 49 \\
20 & 82 & 87 \\
+63 & +12 & -2 \\
83 & 94 & 85 \\
\end{array}\]

\[\begin{array}{ccc}
39 - 8 = 31 & 46 - 5 = 41 & 60 - 30 = 30 \\
11 & +80 & 91 \\
\end{array}\]

\[\begin{array}{ccc}
89 - 9 = 80 & 76 + 11 = 87 & 49 - 39 = 10 \\
18 - 7 = 11 \\
\end{array}\]

For extra practice, do Page 12.
In the boxes write the numerals missing to make 48.

- \( \square + 5 = 48 \)
- \( 59 - \square = 48 \)
- \( 16 + \square = 48 \)
- \( \square - 50 = 48 \)
- \( 68 - 20 = 48 \)
- \( \square + 21 = 48 \)
- \( 32 + \square = 48 \)
- \( 68 - \square = 48 \)
- \( \square + 28 = 48 \)
- \( \square + \square = 48 \)
- \( 30 + \square = 48 \)
- \( \square - 30 = 48 \)
- \( 89 - \square = 48 \)
- \( \square + \square = 48 \)

**Total Points Correct:** 14
Fill in the missing numerals.

\[
\begin{align*}
49 + 30 &= 79 \\
46 - \square &= 30 \\
64 + \square &= 85 \\
\sqrt{12} - 12 &= 12 \\
36 - \square &= 21 \\
49 + \square &= 79 \\
99 - \square &= 88 \\
14 + \square &= 29 \\
31 - \square &= 10 \\
\end{align*}
\]

For extra practice, do Page 13.
Fill in the missing numerals.

\[
\begin{align*}
99 - \boxed{11} &= 88 \\
80 - 20 &= 60 \\
81 + 18 &= 99 \\
26 - 11 &= 15 \\
33 + 33 &= 66 \\
13 + \boxed{14} &= 27 \\
35 - 15 &= 20 \\
76 + \boxed{11} &= 87 \\
98 - \boxed{18} &= 80 \\
80 + 19 &= 99 \\
23 + \boxed{11} &= 34
\end{align*}
\]
Fill in the correct numerals.

\[
\begin{align*}
99 - 12 & = 87 \\
60 + 11 & = 71 \\
80 - 20 & = 60 \\
13 + 14 & = 27 \\
49 + 20 & = 69 \\
29 - 18 & = 11 \\
92 + 5 & = 97 \\
48 - 28 & = 20 \\
98 - 18 & = 80 \\
41 - 11 & = 30 \\
36 + 12 & = 48
\end{align*}
\]
Write the missing numerals in the boxes.

49

- 

22

46

- 36

10

36 + 30 = 66

41 + 58 = 99

58 - 22 = 36

98

- 17

81

78 - 55 = 23

51

+ 42

93

For extra practice, do Page 14.
Add or subtract.

\[
\begin{array}{cccc}
63 & 39 & 47 & 28 \\
+35 & -25 & -31 & +71 \\
\hline
28 & 14 & 16 & 99 \\
\hline
62 + 37 &=& 37 - 14 &=& \\
\hline
& + 11 &=& 32 & 16 + & = 38 \\
\hline
23 & 48 & 53 & 85 \\
-2 & +20 & -23 & +4 \\
\hline
26 + 42 &=& 93 - 81 &=& \\
\end{array}
\]

Add or subtract as the sign tells you.

10 inches 11¢ 18 pennies
-8 inches +7¢ -8 pennies
__ inches __¢ __ pennies

12 squares + 5 squares = ____ squares
Find the sums and differences.

\[38 + 11 = 49\]

\[41 + 11 = 52\]

\[49 - 15 = 34\]

\[11 + 13 = 24\]

\[8 + 90 = 98\]

\[99 - 12 = 87\]

\[91 - 21 = 70\]

<table>
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<tr>
<th>TOTAL POINTS</th>
<th>NUMBER CORRECT</th>
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</table>

30
Fill in the missing numerals.

\[ 3 + 91 = 94 \]

\[ 84 - 20 = 64 \]

\[ 11 + 28 = 39 \]

\[ 83 - 11 = 72 \]

\[ 89 + 70 = 98 \]
Write the missing numerals.

\begin{align*}
48 + \boxed{11} &= 59 \\
\boxed{53} - 42 &= 11 \\
89 - 13 &= 76 \\
37 - \boxed{16} &= 21 \\
18 - 7 &= 11 \\
\boxed{45} + 12 &= 57 \\
31 + \boxed{53} &= 86 \\
99 - \boxed{47} &= 52
\end{align*}
CET II

Add or subtract as the sign tells you.

\[
\begin{array}{cccc}
69 & 24 & 37 & 12 \\
-42 & +3 & -24 & +33 \\
14 & 42 & 76 & 63 \\
+15 & -2 & +23 & -32 \\
17-9 & = & 32-12 & = \\
27+42 & = & 8+8 & = 8 \\
8+ & = 15 & & -56=1
\end{array}
\]

Add or subtract as the sign tells you.

\[
\begin{array}{ccc}
6 \text{ feet} & 4 \text{ minutes} & 8\text{¢} \\
-3 \text{ feet} & +7 \text{ minutes} & +6\text{¢} \\
& & \\
16 \text{ inches} - 9 \text{ inches} & = & \text{____ inches}
\end{array}
\]
LEVEL C, COMBINATION OF PROCESSES, SKILL 1

OBJECTIVE: Adds or subtracts as indicated for mixed sets of problems with sums to 99. No borrowing or carrying. Problems in vertical or horizontal form and may contain missing addends.

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<td>Fills in missing addend.</td>
</tr>
<tr>
<td>8.</td>
<td>Finds sums and differences or fills in missing addends.</td>
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Circle pages that have to be done.
Based upon materials developed by The Mathematics Curriculum Staff, Learning Research and Development Center, University of Pittsburgh; Joseph I. Lipson, Ph.D., Director; Edith Kohut; Barbara Thomas.

Written by the staff of Appleton-Century-Crofts under the direction of Jerome D. Kaplan, Ed.D., Teachers College, Columbia University.
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TO THE STUDENT

Write the answers in the blanks.

17 days       4 squares
- 10 days     + 8 squares
____ days     ____ squares

You will practice doing problems like these in this booklet.

Answers

7, 12
Find the sums and the differences.

\[
\begin{array}{cccc}
15\text{¢} & 7\text{¢} & 5\text{¢} & 14\text{¢} \\
-8\text{¢} & +9\text{¢} & +6\text{¢} & -6\text{¢} \\
-1\text{¢} & 16\text{¢} & 11\text{¢} & 8\text{¢} \\
9\text{¢} & +4\text{¢} & & 18\text{¢} \\
\underline{13\text{¢}} & & & -6\text{¢} \\
\end{array}
\]

\[7\text{¢} + 7\text{¢} = 14\text{¢} \quad 15\text{¢} - 3\text{¢} = 12\text{¢}\]

\[13\text{¢} + 4\text{¢} = 17\text{¢}\]

\[15\text{¢} - 10\text{¢} = 5\text{¢} \quad 8\text{¢} + 8\text{¢} = 16\text{¢}\]
Find the sums and the differences.

9 hours + 7 hours = \_

12 days - 9 days = \_

14 hours - 5 hours = \_

8 months + 4 months = \_

6 minutes + 7 minutes = \_

17 years - 15 years = \_

12 months + 10 weeks = \_

5 days + 5 days = \_

3 weeks + 10 weeks = \_

15 years - 8 years = \_

5 days + 5 days = \_

TOTAL NUMBER CORRECT

9
Find the sums and the differences.

11 circles + 6 circles = 17 circles

16 squares - 2 squares = 14 squares

12 triangles + 4 triangles = 16 triangles

9 rectangles + 3 rectangles = 12 rectangles

18 triangles - 7 triangles = 11 triangles

5 circles + 8 circles = 13 circles

16 squares - 8 squares = 8 squares

9 circles + 5 circles = 14 circles

TOTAL POINTS: 8

CORRECT: 7/9
Find the sums and the differences.

3 yards  + 8 yards  =  11 yards
17 feet  - 4 feet  =  13 feet
15 dozen - 9 dozen =  6 dozen

8 inches + 7 inches = 15 inches
9 feet  - 6 feet  =  3 feet
15 yards - 1 yard  =  14 yards

10 dozen - 4 dozen =  6 dozen
7 inches + 4 inches = 11 inches
18 feet - 9 feet  =  9 feet
Find the sums and the differences.

\[
\begin{align*}
17 \text{ months} & \quad 11\,\text{c} & \quad 12 \text{ hours} \\
- 8 \text{ months} & \quad + 4\,\text{c} & \quad - 7 \text{ hours} \\
\hline
9 \text{ months} & \quad 15\,\text{c} & \quad 5 \text{ hours}
\end{align*}
\]

4 circles + 9 circles = \underline{13} circles

14 months − 11 months = \underline{3} months

8 triangles + 5 triangles = \underline{13} triangles

11 dozen \quad 15\,\text{c} \quad 5 \text{ inches}

+ 6 dozen \quad - 9\,\text{c} \quad + 7 \text{ inches}

\underline{17} dozen \quad 6\,\text{c} \quad 12 \text{ inches}

For extra practice, do Pages 7, 8, and 9.
CET I

Solve each problem.

2 minutes + 10 minutes = ____ minutes

13 feet - 7 feet = ____ feet

12¢  12 apples  8 dogs
+ 5¢  - 4 apples  - 4 dogs
____¢  ____ apples  ____ dogs

18 hours  11 circles  12 dimes
- 7 hours  - 6 circles  - 10 dimes
____ hours  ____ circles  ____ dimes

4 eggs + 13 eggs = ____ eggs

14 days - 12 days = ____ days

Solve these word problems.

Sue had 12 pieces of candy. She gave 5 pieces to Bill. How many did she have left? ____ pieces.

Bill had 6 red boats and 7 green boats. Boats did he have in all? ____ boats.
Write the answers in the blanks.

5 hours + 4 hours + 3 hours

14 months + 3 months + 7 months

6 triangles + 8 triangles + 14 triangles

7 years + 10 years

8 inches + 4 inches

Add

12 squares + 4 squares = 16 squares

6 feet + 5 feet = 11 feet
Fill in the blanks.

15 minutes – 3 minutes = 12 minutes

10 rectangles – 7 rectangles = 3 rectangles

11 yards – 4 yards = 7 yards

18¢ – 15¢ = 3¢

subtract

12 circles

- 5 circles

7 circles

14 years

- 8 years

6 years

13 feet

- 9 feet

4 feet
Find the sums and the differences.

\[
\begin{array}{cccc}
13¢ & 12 \text{ feet} & 11 \text{ hours} & 8¢ \\
+ 5¢ & - 6 \text{ feet} & - 5 \text{ hours} & + 10¢ \\
\hline
18¢ & 6 \text{ feet} & 6 \text{ hours} & 18¢ \\
\end{array}
\]

3 circles + 11 circles = 14 circles

17 days - 12 days = 5 days

18 yards - 4 yards = 14 yards

6 squares + 7 squares = 18 feet

- 17 feet

\[
\begin{array}{cc}
6 \text{ squares} & 18 \text{ feet} \\
+ 7 \text{ squares} & - 17 \text{ feet} \\
\hline
13 \text{ squares} & 1 \text{ foot} \\
\end{array}
\]

7 years + 10 years = 17 years

18¢ - 6¢ = 12¢
CET II

Find the sums or differences.

3 oranges + 7 oranges = ______ oranges

18 inches – 6 inches = ______ inches

4 circles + 12 circles = ______ circles

3¢ + 12¢ = ______¢ 25¢ – 10¢ = ______

4 dimes + 6 dimes = ______ dimes 8 yards + 5 yards = ______ yards

4 pennies – 0 pennies = ______ pennies

7 apples – 5 apples = ______ apples

10 books + 0 books = ______ books

Solve each word problem.

Jimmy had 10¢. He spent 6¢ for an ice-cream cone. How much money did he have left? ______¢

Jane had two pet ducks named Sue and Sally. One week Susie laid 5 eggs and Sally laid 3 eggs. How many eggs did they lay in all? ______ eggs
LEVEL C, COMBINATIONS OF PROCESSES, SKILL 2

OBJECTIVE: Finds the sums and differences for problems involving money values, measurement units, time, and geometry, learned in Level B. Sums to 18. No conversion of units.

STANDARD TEACHING SEQUENCE

1. Finds sums and differences involving money values (cents).
2. Finds sums and differences involving time.
3. Finds sums and differences involving names of geometrical figures.
4. Finds sums and differences involving measurement units.
5. Finds sums and differences involving money values, time, names of geometrical figures, and measurement units.
6. CET I.
   CET II.

Supplementary Material

Circle pages that are to be done.
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Standard Teaching Sequence, Con't.
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Teaching Aids:
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<tr>
<td>Harcourt, Brace &amp; World, 1966</td>
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<td>Elementary Mathematics - 4</td>
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TO THE STUDENT

John had 3 toy cars. Sam had 9 toy cars. How many more cars did Sam have than John. _____

In this booklet you will learn how to do problems like this.

There is a prerecorded tape for this booklet.

Answers

6
Solve these problems.

The Smith family went on a vacation. They spent four days in Pittsburgh and 9 days in Washington, D. C. How many days were they gone?

John’s boat was 16 feet long. Joe’s boat was 7 feet long. How much longer was John’s boat than Joe’s boat?

Jan had 15 quarts of milk for her party. She used 6 quarts. How many quarts of milk are left?
Solve these problems.

Betsy had 18¢. She decided to buy a card for her mother. The card cost 9¢. How much did Betsy have left?

Jane found 13 quarters. She gave 7 of them to Sally. How many quarters did Jane have left?

It took Joe 13 minutes to walk to school. It took Jim 7 minutes. How much longer did it take Joe than Jim?
Solve these problems.

Jan had 8 dozen blocks and Sue had 8 dozen blocks. How many blocks did both girls have together?

\[ 8 \text{ dz.} + 8 \text{ dz.} = 16 \text{ dz.} \]

Dick had 8 nickels and Tom had 7 nickels. How many nickels did both boys have together?

\[ 8 \text{ nickels} + 7 \text{ nickels} = 15 \text{ nickels} \]

Jim had 15¢. He bought some ribbon for 6¢. How many cents does he have left?

\[ 15 \text{¢} - 6 \text{¢} = 9 \text{¢} \]
Solve these problems.

Sally has lived on Oak Street for 9 months. Jack has lived there for 7 months. How many more months than Jack has Sally lived on Oak Street?

The girls had 6 nickels and the boys had 8 nickels. How many nickels did the children have together?

The Brown family left on their vacation. They drove 7 hours the first day and 7 hours the second day. How many hours did they drive in the two days all together?
Solve these problems.

For the birthday party, mother bought 13 quarts of ice cream. The children ate 9 quarts. How many quarts of ice cream are left?

Dick had a board 12 inches long. He sawed off 8 inches. How long is the board now?

Sue bought a cupcake for 9¢ and an apple for 5¢. How much money did she spend all together?
Solve these problems.

Joe had 3 yards of rope. Sam had 6 yards. How many yards of rope do the boys have together?

Mary had 14 dimes. She gave 9 of them to Alice. How many dimes did Mary have then?

Mary needs 12¢ to buy a card. She has 5¢. How many more cents does Mary need?
Solve these problems.

Sally had 12 minutes to do her work. She was finished in 5 minutes. How many more minutes could she have worked?

Mr. Jones bought 17 dozen peaches. He sold 8 dozen in his store. How many more dozen does he still have to sell?

Karen has 18 pennies. Tom had 9 pennies. How many more pennies than Tom does Karen have?
Solve these problems.

Sally practiced the piano for 6 hours. Jan practiced for 4 hours. How much longer did Sally practice than Jane?

Dick had 14 pennies. He bought a ball for 9 pennies. How many pennies did he have left?

Mother had 16 feet of old material. The girls used seven feet for play clothes. How much material was left?
Solve these problems.

Ann had a piece of ribbon 15 inches long. She only needed 8 inches. How much ribbon was left?

\[
\begin{align*}
15 \text{ inches} & \quad - 8 \text{ inches} \\
\hline
7 \text{ inches}
\end{align*}
\]

Jim had 9 pints of milk. He bought 9 more pints. How many pints of milk does he have?

\[
\begin{align*}
9 \text{ pints} & \quad + 9 \text{ pints} \\
\hline
18 \text{ pints}
\end{align*}
\]

Betsy went to the store to buy some ribbon and paper to wrap her Mother's Day gift. The ribbon cost 9 cents, and the paper cost 8 cents. How much did she spend?

\[
\begin{align*}
9 \text{¢} & \quad + 8 \text{¢} \\
\hline
17 \text{¢}
\end{align*}
\]

For extra practice, do Pages 11 and 12.
CET I

Solve these word problems.

Jan had 16 pennies. She spent 9 on some candy. How many pennies did she have left?

____ pennies

Mary bought 3 candy bars at the store. Jane bought 7 candy bars. How many candy bars did they buy altogether?

____ candy bars

Betty had 14 gum balls. She gave 8 to her little brother. How many did she have left?

____ gum balls

Put > or < in the circle to make a true number sentence.

6 hours + 8 hours  □  18 hours - 6 hours
5 pennies - 3 pennies  □  5 pennies + 3 pennies
7 days + 4 days  □  6 days + 6 days
Solve these problems.

It took Dick 13 days to build a tree house. Fred helped him for 5 days. How many days did he work by himself?

One baby is 9 months old. Another baby is 4 months old. How old are both the babies together?

Dick is 17 years old. His brother is 8 years old. How much older is Dick than his brother?
Solve these problems.

Room 5 had 18 pints of milk. 9 children didn’t want their milk. How many pints of milk were left?

Jane had saved 16 yards of string. She lost 9 yards. How much does she have left?

Sally had 17 quarters. She bought a doll for 6 quarters. How many quarters does she have now?
CET II

Solve these problems.

1. Mary had 5¢. She and her brother bought a candy bar for 10¢. How much did her brother pay?

   ____¢

2. Billy had 10 feet of track for his trains. His father gave him 6 feet more. How much track does he have now?

   ____feet

3. Ann has 5 storybooks. She has read 3 of them. How many books does she have left to read?

   ____books

Put > for < in the circle to make a true number sentence.

7 days + 7 days   14 days − 4 days

12 circles − 4 circles   14 circles − 8 circles

3 eggs + 3 eggs   12 eggs − 4 eggs
OBJECTIVE: Solves one-step word problems involving adding and subtracting values in money, time, and measurement from Level B. Sums to 18.

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<td>Solves word problems.</td>
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Supplementary Material

11, 12
13

There is a prerecorded tape for this booklet.

Circle pages that are to be done.
Sequence No. | Prescription No.
--- | ---
14R | Studies 4 rules for solving word problems.

Textbook Resources:

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<td><strong>Two By Two</strong> (Grade 2)</td>
<td>30, 31, 34, 47,</td>
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<tr>
<td>Harcourt, Brace &amp; World, 1966</td>
<td>12</td>
<td>13</td>
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<tr>
<td><strong>Elementary Mathematics</strong> (Gr. 3)</td>
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</table>
Write the correct sign $>$ or $<$ in the $\bigcirc$

Jane had 4 cents. Bobby had 6 cents. Who had more money?

6 cents $\bigcirc$ 4 cents.

Answer

6 cents $\geq$ 4 cents
Write the sums in each box. Then fill in the blanks and write the correct sign, < or >, in each circle. Look at the sentences you have made.

< "less than"

> "greater than"

15 < 8 + 8

8 + 8 = 16

The true sentence is 15 < 16.

9 < 6 + 7

6 + 7 = 13

The true sentence is 9 < 13.

12 > 3 + 4

3 + 4 = 7

The true sentence is 12 > 7.

9 < 6 + 5

6 + 5 = 11

The true sentence is 9 < 11.

For extra practice, do Page 13.
Write < or > in each circle to make a true sentence.

\[ 7 - 2 = 5 \]
\[ 5 + 1 = 6 \]
\[ 7 - 2 \, \text{<} \, 5 + 1 \]

\[ 15 - 8 = 7 \]
\[ 6 + 3 = 9 \]
\[ 15 - 8 \, \text{<} \, 6 + 3 \]
\[ 9 + 4 = 13 \]
\[ 6 + 8 = 14 \]
\[ 9 + 4 \, \text{<} \, 6 + 8 \]

\[ 9 - 2 \, \text{<} \, 3 + 2 \]
\[ 3 + 7 \, \text{<} \, 8 + 4 \]
\[ 7 + 2 \, \text{<} \, 4 + 6 \]

For extra practice, do Page 14.
Write < or > in each circle to make true sentences. Draw lines between sentences which say the same thing.

\[ 6 < 4 + 7 \quad \text{and} \quad 7 > 4 \]
\[ 7 > 5 - 1 \quad \text{and} \quad 6 < 11 \]

\[ 6 + 7 \quad \text{and} \quad 3 + 7 \]
\[ 12 - 2 \quad \text{and} \quad 14 - 1 \]
\[ 7 + 5 \quad \text{and} \quad 9 - 3 \]

For extra practice, do Page 15.
Write < or > in each circle to make true sentences.

12 pennies \( > \) 4 pennies + 3 pennies.

11 inches \( < \) 6 inches + 6 inches.

9 feet \( > \) 3 feet + 5 feet.

2 minutes + 6 minutes \( < \) 14 minutes.

5 hours + 2 hours \( < \) 14 hours.

4 weeks - 3 weeks \( < \) 2 weeks.

7 days - 4 days \( < \) 6 days.

For extra practice, do Page 16.
Look at the number line.
Write = or ≠ in each circle.

= “equal”
≠ “not equal”

For extra practice, do Page 17.
Write = or ≠ in each circle to make true sentences.

= “equal”
≠ “not equal”

5 \(\bigcirc\) 4 + 1
6 + 2 \(\bigcirc\) 5 + 4
9 - 5 \(\bigcirc\) 3 + 1
4 + 7 \(\bigcirc\) 6 + 5
8 - 4 \(\bigcirc\) 9 - 3
7 + 6 \(\bigcirc\) 10 + 3

3 + 2 \(\bigcirc\) 5 - 1
7 + 1 \(\bigcirc\) 4 + 4
5 + 2 \(\bigcirc\) 4 + 3
6 + 1 \(\bigcirc\) 7 - 3
9 + 3 \(\bigcirc\) 2 + 8
3 + 6 \(\bigcirc\) 10 - 1

For extra practice, do Page 18.
Write = or ≠ in each circle to make true sentences.

Start

9 + 7 ≠ 3 + 10

12 ≠ 6 + 6

10 - 4 ≠ 12 - 6

6 + 2

10 - 1 ≠ 8

4 + 5

Finish
Write = or ≠ in each circle to make true sentences.

= or ≠

(12 − 1) pennies = 11 pennies
(4 − 1) days = (2 + 1) days
(6 + 3) inches = (4 + 5) inches
(4 + 4) hours ≠ (10 − 3) hours
9 + 9 = 10 + 8
8 + 3 ≠ 9 + 3
(13 − 4) feet ≠ (6 + 4) feet

For extra practice, do Page 19.
Write $<$, $>$, or $=$ in each circle to make true sentences.

$6 + 3 \quad \quad \quad \quad 9 - 1$

$8 + 2 \quad \quad \quad \quad 10$

$4 + 3 \quad \quad \quad \quad 10 - 3$

$14 \quad \quad \quad \quad 7 + 9$

$10 + 5 \quad \quad \quad \quad 11$

$4 + 2 \quad \quad \quad \quad 6 + 4$

$8 + 1 \quad \quad \quad \quad 10 - 2$

$6 + 3 \quad \quad \quad \quad 10 - 1$

For extra practice, do Page 20.
Write <, >, or = in each circle to make true sentences.

13 - 3 \(\equiv\) 10

7 + 6 \(\leq\) 7 + 8

4 + 3 \(\equiv\) 12 - 5

3 + 3 \(\equiv\) 12 - 6

4 + 9 \(\leq\) 7 + 9

8 + 5 \(\equiv\) 5 + 8

9 + 6 \(\succ\) 4 + 10

9 + 9 \(\succ\) 12 + 2

For extra practice, do Page 21.
Write <, >, or = in each circle to make true sentences.

3 days + 2 days \( \square \) 5 days.

6 + 3 \( \square \) 10 - 1.

5 miles - 2 miles \( \triangleleft \) 9 miles.

(12 - 2) inches \( \square \) 10 inches.

6 weeks \( \triangleright \) (5 - 1) weeks.

16 hours \( \triangleright \) (9 + 1) hours.

3 + 3 \( \square \) 6.

9 feet \( \square \) (6 + 3) feet.

10 - 3 \( \triangleleft \) 6 + 2.

For extra practice, do Page 22.
CET I

Put = or ≠ in the circle.

4 pigs + 7 pigs 0 17 pigs - 7 pigs.
8 dogs - 4 dogs 0 12 dogs - 8 dogs.
3 cats + 12 cats 0 8 cats + 7 cats.
4 bears + 10 bears 0 6 bears + 9 bears.

Put > or < in the circle.

17 roses - 13 roses 0 17 roses - 14 roses.
8 cups + 6 cups 0 9 cups + 3 cups.
7 homes - 6 homes 0 12 homes - 10 homes.
13 pens + 4 pens 0 15 pens + 1 pen.

Put + or - in each circle.

8 0 4 = 4 14 0 4 = 10
7 0 4 = 11 13 0 3 = 16
Look at the number lines. Write the sums in the boxes. Then write < or > in each circle to make true sentences.

3 + 2 = 5
3 + 2 < 6 + 2

3 + 3 = 6
3 + 3 < 8 + 2

7 - 1 = 6
7 - 1 > 8 - 3
Look at the number line. Write < or > in each circle to make true sentences.

1 < 7
5 < 7
1 + 2 < 7
4 - 1 < 7
8 - 2 < 7
10 > 7
13 > 7
6 + 8 > 7
14 - 6 > 7
10 - 1 > 7

TOTAL POINTS: 10
Look at the number line. Write < or > in each circle to make true sentences. Check your answer by finding the sums.

Write the sums.

10 - 1 \( \square \) 6 + 2
6 + 2 = \( \square \)

16 - 7 \( \square \) 8 + 2
8 + 2 = \( \square \)

8 + 2 \( \square \) 5 - 3
5 - 3 = \( \square \)

6 + 4 \( \square \) 6 - 4
6 - 4 = \( \square \)

0 + 9 \( \square \) 7 + 3
7 + 3 = \( \square \)

5 + 3 \( \square \) 4 + 2
4 + 2 = \( \square \)
Write < or > in each circle to make true sentences.

12 □ 6 + 3 □ 12 pennies □ 6 pennies + 3 pennies.
7 □ 4 + 6 □ 7 inches □ 4 inches + 6 inches.
8 - 2 □ 9 □ 8 feet - 2 feet □ 9 feet
9 □ 5 + 2 □ 9 days □ 5 days + 2 days.
5 □ 6 - 2 □ 5 hours □ 6 hours - 2 hours.

12 days □ 13 days.
8 days □ 7 days.
9 days + 2 days □ 14 days.

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85
Look at the number lines.
Write = or ≠ in each circle.

= equal
≠ not equal

\[2 + 2 \neq 8\]
\[3 + 3 = 6\]

\[1 + 3 \neq 6\]
\[4 + 5 = 9\]

\[2 + 3 = 5\]
\[4 + 6 \neq 9\]

\[1 + 6 \neq 8\]
\[4 + 4 \neq 9\]

\[2 + 1 \neq 4\]
\[4 + 3 = 7\]
Write the sums in the boxes. Write = or ≠ in the circles to make true number sentences.

\[
\begin{align*}
8 + 1 &= 9 \\
4 + 3 &= 5 \\
11 - 2 &= 10 \\
3 + 5 &= 8 \\
4 + 5 &= 9 \\
6 + 2 &= 8 \\
7 + 1 &= 8 \\
4 + 4 &= 8 \\
3 + 3 &= 6 \\
6 + 6 &= 12
\end{align*}
\]
Write = or ≠ in each circle to make true sentences.

\[
\begin{align*}
12 & \quad 6 + 6 & 12 \text{ days} & \quad 6 \text{ days} + 6 \text{ days.} \\
7 & \quad 3 + 2 & 7 \text{ feet} & \quad 3 \text{ feet} + 2 \text{ feet.} \\
8 - 2 & \quad 6 & 8 \text{ inches} - 2 \text{ inches} & \quad 6 \text{ inches.} \\
8 + 1 & \quad 6 + 1 & (8 + 1) \text{ hours} & \quad (6 + 1) \text{ hours.} \\
5 & \quad 9 - 4 & 5 \text{ dimes} & \quad (9 - 4) \text{ dimes.} \\
\end{align*}
\]

\[
\begin{align*}
5 + 3 & \quad 4 + 4 \\
6 \text{ hours} & \quad (3 + 4) \text{ hours.} \\
2 \text{ days} & \quad (8 - 6) \text{ days.} \\
6 + 2 & \quad 8
\end{align*}
\]
Write <, >, or = to make true sentences and fill in the blanks.

- Less than: <
- Greater than: >
- Equal: =

1. $4 \text{ } \circ \text{ } 5 + 1$
2. $4 \text{ } \circ \text{ } 3$
3. $4 + 2 \text{ } \circ \text{ } 1 + 3$
4. $6 \text{ } \circ \text{ } 4$
5. $4 + 1 \text{ } \circ \text{ } 3 + 2$
6. $5 \text{ } \circ \text{ } 5$
7. $6 + 3 \text{ } \circ \text{ } 8$
8. $9 \text{ } \circ \text{ } 8$

$(5 + 2) \text{ feet } \circ \text{ } 7 \text{ feet.}$

$7 \text{ feet } \circ \text{ } 7 \text{ feet.}$

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Write <, >, or = to make true sentence.

< "less than"
>
= "equal"

\[
\begin{align*}
6 \quad & \quad = \quad 5 + 1 \\
2 + 3 \quad & \quad < \quad 7 - 1 \\
8 + 2 \quad & \quad > \quad 4 + 5 \\
3 + 3 \quad & \quad < \quad 4 + 4 \\
10 - 5 \quad & \quad = \quad 9 - 4 \\
6 + 6 \quad & \quad < \quad 13
\end{align*}
\]
Write <, > or = in each circle to make true sentences.

"less than"

> "greater than"

= "equal"

7 hours \(\equiv\) 6 hours + 1 hour.

(5 + 2) days \(\succ\) 4 days.

7 + 2 \(\preceq\) 10.

(3 + 2) inches \(\equiv\) (4 + 3) inches.

(4 + 5) hours \(\equiv\) (6 + 3) hours.

4 − 1 \(\equiv\) 9 − 6.

5 + 5 \(\equiv\) 10.

6 + 3 \(\succ\) 4 + 4.

3 dimes \(\succ\) (7 − 5) dimes.
CET II

Put = or ≠ in the circle.

7 inches + 4 inches □ 15 inches - 4 inches.
18 hours - 12 hours □ 2 hours + 3 hours.
3 bananas - 2 bananas □ 2 bananas + 0 bananas.
13¢ + 2¢ □ 7¢ + 8¢

Put <, >, or = in the circle.

17 feet - 14 feet □ 7 feet + 4 feet.
10 triangles + 8 triangles □ 17 triangles - 0 triangles.
9 minutes - 3 minutes □ 4 minutes + 2 minutes.
8¢ - 4¢ □ 4¢ + 1¢

Put + or - in each circle to make a true number sentence.

7 □ 3 = 4
17 □ 14 = 3
15 □ 3 = 18
7 □ 4 = 11
LEVEL C, COMBINATION OF PROCESSES, SKILL 4

OBJECTIVE: Fills in >, <, =, ≠ for addition or subtraction expressions including units in money, time, and systems of measurement from Level B. Sums to 18. No conversion of units.

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Based upon materials developed by The Mathematics Curriculum Staff, Learning Research and Development Center, University of Pittsburgh; Joseph Lipson, Ph.D., Director; Edith Kohut; Barbara Thomas.

Written by the staff of Appleton-Century-Crofts under the direction of Jerome D. Kaplan, Ed.D., Teachers College, Columbia University.
TO THE STUDENT

You should be able to write $= \text{ or } \neq$ in the circle to make a true sentence.

$2 + 3 \bigcirc 5 + 0$

Write $+$ or $-$ in the circle to make a true sentence.

$6 \bigcirc 2 = 8$

Answers

|--|--
$=, +$
Add, using the number line.

The number line shows that

$$2 + 3 = \_\_\_.$$ 

The number line shows that

$$4 + 3 = 7.$$ 

The number line shows that

$$3 + 5 = \_\_\_.$$ 

For extra practice, do Page 12.
Subtract using the number line.

The number line shows that
\[ 5 - 3 = \underline{2}. \]

The number line shows that
\[ 7 - \underline{4} = 3. \]

The number line shows that
\[ \underline{8} - 3 = 5 \]

For extra practice, do Page 13.
Write + or − in the circle to show the jumps on the number line.

\[ 2 \div 1 = 3 \]
\[ 2 - 1 = 1 \]

Write + or − in each circle to make true sentences.

\[ 3 \div 1 = 4 \]
\[ 1 + 1 = 2 \]
\[ 3 + 2 = 5 \]
\[ 4 - 2 = 2 \]

\[ 3 - 1 = 2 \]
\[ 1 - 1 = 0 \]
\[ 3 - 2 = 1 \]

For extra practice, do Page 14.
Write + or – in each circle to make true sentences.

Look at the number line.

4 ÷ 4 = 8
6 ÷ 3 = 3
8 – 7 = 1
8 ÷ 4 = 4
2 + 6 = 8
5 + 4 = 9
3 – 3 = 0

4 ÷ 4 = 0
6 ÷ 3 = 9
2 + 7 = 9
6 + 5 = 11
7 – 4 = 3
8 + 2 = 10
9 ÷ 4 = 5

For extra practice, do Page 15.

TOTAL POINTS 14
NUMBER CORRECT

LEVEL C
UNIT 07
SKILL 5
PAGE 4
Write + or – in each circle to make true sentences.

4 + 5 = 9
9 + 6 = 15
9 + 3 = 12
13 – 4 = 9
4 + 7 = 11
13 – 6 = 7
9 + 4 = 13
9 + 7 = 16

6 + 4 = 10
16 – 8 = 8
6 + 7 = 13
12 – 3 = 9
14 – 9 = 5

TOTAL POINTS: 13
Write + or − in the circle to make true sentences.

\[
\begin{align*}
16 &= 9 \bigcirc 7 \\
12 &= 7 \bigcirc 5 \\
14 &\bigcirc 8 = 6 \\
7 &\bigcirc 5 = 12 \\
10 &\bigcirc 3 = 7 \\
14 &= 8 \bigcirc 6 \\
13 &= 10 \bigcirc 3 \\
8 &= 10 \bigcirc 2 \\
10 &= 13 \bigcirc 3 \\
9 &= 8 \bigcirc 1 \\
8 &\bigcirc 4 = 12 \\
14 &\bigcirc 6 = 8 \\
10 &\bigcirc 4 \\
10 &\bigcirc 3 = 7 \\
12 &\bigcirc 6 \\
\end{align*}
\]

For extra practice, do Page 16.

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103
Write + or – to make true sentences.

18 (–) 9 = 9
15 (–) 8 = 7
10 (+) 5 = 15
9 (+) 8 = 17
18 = 12 (+) 6
9 (+) 5 = 14

5 = 14 (–) 9
14 (–) 7 = 7
12 (–) 3 = 9
9 (+) 6 = 15
15 = 7 (+) 8
12 (–) 6 = 6

For extra practice, do Page 17.
Complete the number name for 5 by writing + or – in the circles. Write the sum or difference in the blanks.

\[6 - 1 = 3 \quad \square + 2\]

\[5 = \_\_\_

(6 - 1) \quad 2

3 \quad \square - 2\]

Complete the number name for 7 by writing + or – in the circle. Fill in the blanks.

\[5 + 2 = 4 \quad \square + 3\]

\[7 = \_\_\_\_\_

4 \quad \square + 3\]

\[7\]
Write + or − in each circle to make true sentences and fill in the blanks.

\[3 \square \square \square \square \quad 2 = 5 - 0\]

\[5 = 5\]

\[4 \quad 9 = 7 \square \square \square \square \quad 6\]

\[13 = 13\]

\[8 \square \square \square \square \quad 4 = 6 - 2\]

\[4 = 4\]

\[8 \quad \square \square \square \square \quad 1 = 4 + 5\]

\[9 = 9\]

\[5 + 5 = 13 \square \square \square \square \quad 3\]

\[10 = 10\]

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106
Write + or − in each circle and fill in the blanks.

9 \( \bigcirc \) 3 = 3 + 3  
\[ \_ = \underline{6} \]

6 \( \bigcirc \) 1 = 3 + 4  
\[ \_ = \underline{7} \]

10 \( \bigcirc \) 1 = 6 + 3  
\[ \_ = \underline{9} \]

9 \( \bigcirc \) 6 = 2 + 1  
\[ \_ = \underline{3} \]

7 \( \bigcirc \) 5 = 12 + 0  
\[ 12 = \underline{12} \]

9 + 7 = 17 \( \bigcirc \) 1  
\[ 16 = \underline{16} \]

5 + 3 = 16 \( \bigcirc \) 8  
\[ 8 = \underline{8} \]

5 \( \bigcirc \) 2 = 12 − 5  
\[ \_ = \underline{7} \]

TOTAL NUMBER POINTS CORRECT

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LEVEL | UNIT | SKILL | P |
-----|------|-------|---|
C    | 0    | 5     | 10|

167
CET I

Put + or − in the circle.

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</tr>
<tr>
<td>9</td>
<td>0 = 9</td>
<td>7</td>
</tr>
<tr>
<td>14</td>
<td>6 = 8</td>
<td>12</td>
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<tr>
<td>17</td>
<td>8 = 9</td>
<td>6</td>
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Fill in the circle to make a true number sentence.

6 + 7 = 16 −

14 − 6 = + 3

− 7 = 4 + 4

6 ÷ = 8 ÷ .7
Use number lines and fill in the circles to make true sentences.

\[3 \div 1 = 4\]  \[3 \times 1 = 2\]

\[5 \div 2 = 3\]  \[5 \times 2 = 7\]

\[8 \div 2 = 10\]  \[8 \times 2 = 6\]
Write + or – in each circle to make true sentences.

Look at the number line.

2 \( \square + \square = 4 \)

1 \( \square + \square = 3 \)

4 \( \square - \square = 1 \)

4 \( \square + \square = 6 \)

5 \( \square - \square = 2 \)

7 \( \square - \square = 3 \)

TOTAL POINTS | NUMBER CORRECT
---|---
6 | 6

LEVEL | UNIT | SKILL | PAGE
---|---|---|---
C | 07 | 5 | 13

110
Circle the correct sign in each of the number sentences below:

-9 + (−) 2 = 7
8 + (−) 2 = 6
3 (−) 2 = 5
4 + (−) 3 = 7
1 + (−) 2 = 3

9 + (−) 2 = 9 = 18
7 + (−) 2 = 5
9 + ( ) 7 = 16
2 + ( ) 4 = 6
6 + ( ) 6 = 12

TOTAL POINTS: 10
NUMBER CORRECT: 9

LEVEL: C
UNIT: 07
SKILL: 5
PAGE: 14
Look at the pictures and write + or – in the circles to make true sentences.

- 7 + 3 = 4
- 4 × 3 = 7
- 7 - 4 = 3
- 9 - 2 = 7
- 7 + 2 = 9
- 9 - 7 = 2
- 7 + 3 = 10
- 10 - 3 = 7
- 10 - 7 = 3

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</table>
Write + or - in the circle to make a true number sentence.

In a true number sentence, each side of the = sign must be a name for the same number.
Write + or – to make true sentences and fill in the blanks.

6 $\text{[circle]}$ $3 = 9 = 7 + 2$

4 $\text{[circle]}$ $2 = 6 = 3 + 3$

3 $\text{[circle]}$ $2 = 1 = 0 + 1$

5 $\text{[circle]}$ $2 = 7 = 8 - 1$

7 $\text{[circle]}$ $1 = 8 + 0$

$\text{[circle]} = 8$

6 $\text{[circle]}$ $2 = 2 + 2$

$\text{[circle]} = 4$
CET II

Put + or − in the circle to make a true number sentence.

8 \(\bigcirc\) 3 = 11
13 \(\bigcirc\) 8 = 5
5 \(\bigcirc\) 13 = 18
15 \(\bigcirc\) 0 = 15
10 \(\bigcirc\) 6 = 4
4 \(\bigcirc\) 3 = 7
16 \(\bigcirc\) 13 = 3
3 \(\bigcirc\) 5 = 8
18 \(\bigcirc\) 11 = 7
17 \(\bigcirc\) 7 = 10

Fill in the circle to make a true number sentence.

18 − 9 = 4 + \(\bigcirc\)
8 + 7 = \(\bigcirc\) + 6
\(\bigcirc\) − 4 = 3 + 7
14 − \(\bigcirc\) = 4 + 4
OBJECTIVE: Fills in + or - to complete an equation for addition and subtraction skills learned to this point.

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<tr>
<td>9. Writes + or - in addition and subtraction expressions to make them equivalent and fills in numerals.</td>
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<td>Makes correct number sentence: ( \underline{7} ) by putting a plus or minus sign in the placeholder.</td>
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<td>Harcourt, Brace &amp; World, 1965</td>
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<td>153</td>
</tr>
<tr>
<td>One By One (Grade 2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TO THE STUDENT

Write the missing numeral.

\[ 7 + 5 = \underline{\quad} - 3 \]

In this booklet, you will learn to do these kinds of problems.
Find the missing numeral.

\[ 6 + \_? = 9 \]

To do this problem, look at the number line.

Here you are at 6. How many more steps do you take to get to 9?

Now fill in the numeral.

\[ 6 + 3 = 9 \]

You are at 3. How many more steps are there until 7?

\[ 5 + 3 = 8 \]

\[ 4 + 6 = 10 \]
Fill in the missing numerals. Use this number line to help you.

\[ 0 \quad 1 \quad 5 \quad 10 \quad 15 \]

\[
\begin{align*}
5 + \_ & = 12 \\
4 + 10 & = 14 \\
6 + 9 & = 15
\end{align*}
\]

\[
\begin{align*}
2 + 6 & = 8 \\
7 + 7 & = 14 \\
8 + 5 & = 13
\end{align*}
\]

Here is a problem you have done.

\[ 5 + \_ = 12 \]

If it is turned around, can you still do it?

\[ \_ + 5 = 12 \]

Here we are at 5. How many steps is it to 12?

Use the number line to find the missing numeral.

\[
\begin{align*}
3 + 2 & = 5 \\
3 + 3 & = 6 \\
3 + 4 & = 7 \\
1 + 6 & = 7
\end{align*}
\]

For extra practice, do Page 13.
Try doing these problems without using the number line.

\[
\begin{align*}
4 + 1 & = 5 \\
4 + 2 & = 6 \\
4 + 3 & = 7 \\
6 + 3 & = 9 \\
6 + 4 & = 10 \\
6 + 5 & = 11 \\
5 + 5 & = 10 \\
5 + 6 & = 11 \\
5 + 7 & = 12 \\
4 + 4 & = 8 \\
5 + 4 & = 9 \\
6 + 4 & = 10 \\
6 + 6 & = 12 \\
7 + 6 & = 13 \\
8 + 6 & = 14 \\
8 + 5 & = 13 \\
9 + 5 & = 14 \\
10 + 5 & = 15
\end{align*}
\]
Find the missing numerals.

\[ 9 - \_\_\_ = 6 \]

- \[ 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9 \quad 10 \quad 11 \quad 12 \quad 13 \quad 14 \quad 15 \]

Here you are at 9.

How many steps backward do you take to get to 6? \( \frac{3}{3} \)

Now fill in the numeral.

\[ 9 - \_\_\_ = 6 \]

Remember that when you subtract you take backward steps on the number line.

\[ 7 - \_\_ = 4 \]

How many steps from 7 to 4?

\[ 8 - \_\_ = 6 \]

\[ 9 - \_\_ = 5 \]

\[ 10 - \_\_ = 3 \]
Fill in the missing numerals. Use this number line to help you.

\[ \begin{align*}
10 - \underline{5} & = 5 \\
12 - \underline{2} & = 10 \\
15 - \underline{5} & = 10
\end{align*} \]

Now the problem is turned around. \( \_ \) - 5 = 3

Sue took 5 of my sticks away.

Draw 5 sticks.

I have 3 left.

Draw 3 sticks.

How many did I have before Sue took any?

Count them all.

Now fill in the numeral.

\[ 8 - 5 = 3 \]

For extra practice, do Page 14.
Fill in the missing numerals.

\[ \underline{9} - 4 = 5 \]

Draw the 4 sticks which were taken away. \[ \underline{\underline{1 \mid 1}} \]

Draw the 5 you have left. \[ \underline{\underline{1 \mid 1 \mid 1 \mid 1 \mid 1}} \]

Count them all.

\[ 10 - 4 = 6 \]
\[ 11 - 4 = 7 \]
\[ 12 - 4 = 8 \]

\[ 9 - 2 = 6 \]
\[ 9 - 3 = 6 \]
\[ 10 - 6 = 4 \]

\[ 10 - 5 = 5 \]
\[ 9 - 5 = 4 \]
\[ 8 - 5 = 3 \]

\[ 10 - 2 = 8 \]
\[ 9 - 7 = 2 \]
\[ 10 - 2 = 8 \]
\[ 9 - 7 = 2 \]
\[ 7 - 3 = 4 \]
\[ 12 - 8 = 4 \]

\[ 3 - 3 \cdot 4 \]

\[ 12 - 8 = 4 \]
Fill in the missing numerals.

\[ 15 - \underline{\phantom{5}} = 10 \quad \quad \quad 12 - \underline{\phantom{4}} = 8 \]
\[ 15 - \underline{\phantom{6}} = 9 \quad \quad \quad 12 - \underline{\phantom{3}} = 9 \]
\[ 15 - \underline{\phantom{7}} = 8 \quad \quad \quad 12 - \underline{\phantom{2}} = 10 \]
\[ 15 - \underline{\phantom{8}} = 7 \quad \quad \quad 12 - \underline{\phantom{1}} = 11 \]

\[ \underline{\phantom{8}} - 4 = 4 \quad \quad \quad \underline{\phantom{10}} - 4 = 6 \]
\[ \underline{\phantom{7}} - 4 = 3 \quad \quad \quad 11 - 4 = 7 \]
\[ \underline{\phantom{6}} - 4 = 2 \quad \quad \quad 12 - 4 = 8 \]
\[ \underline{\phantom{5}} - 4 = 1 \quad \quad \quad 13 - 4 = 9 \]
Fill in the missing numerals.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>9 + 4 =</td>
<td>13</td>
<td>13 − 9 = 4</td>
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<tr>
<td>9 + 4 = 13</td>
<td>13 − 9 = 4</td>
<td></td>
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<tr>
<td>5 + 11 = 16</td>
<td>16 − 11 = 5</td>
<td></td>
</tr>
<tr>
<td>5 + 11 = 16</td>
<td>16 − 11 = 5</td>
<td></td>
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</tbody>
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<td>7 + 8 = 15</td>
<td>15 − 7 = 8</td>
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<tr>
<td>7 + 8 = 15</td>
<td>15 − 7 = 8</td>
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</thead>
<tbody>
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<td>18 − 8 = 10</td>
<td></td>
</tr>
<tr>
<td>10 + 8 = 18</td>
<td>18 − 8 = 10</td>
<td></td>
</tr>
<tr>
<td>10 + 8 = 18</td>
<td>18 − 8 = 10</td>
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TOTAL POINTS | NUMBER CORRECT |
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<table>
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<th>SKILL</th>
<th>PAGE</th>
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<td>07</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>128</td>
</tr>
</tbody>
</table>
Fill in the missing numerals.

\[
\begin{align*}
9 - 2 &= 4 + \_ \quad \text{side A} \\
4 + \_ &= \quad \text{side B}
\end{align*}
\]

This symbol means that both sides are equal.

Side A has the value of \(9 - 2 = 7\).

How can you make the value of Side B equal to 7?

\[4 + 3 = 7\]

Now fill in the numeral.

\[9 - 2 = 4 + 3\]

\[6 - 2 = 3 + \_
\]

Subtract the value of side A and keep the answer in your head.

Then ask \(3 + \_ = 4\)

\[8 - 3 = 2 + 3\]
\[9 - 4 = \frac{3}{\_} + 2\]
\[5 - 1 = 3 + \_\]
\[7 - 1 = 2 + 4\]

Check and see if both sides are equal.

<table>
<thead>
<tr>
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<th>NUMBER CORRECT</th>
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<tbody>
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<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>07</td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>
Fill in the missing numerals.

\[ 5 + 3 = 10 - \_ \]

\[ 10 - ? = 8 \]

The value of both sides equal 8.

\[ 2 + 5 = 10 - \_ \]
\[ 4 + 4 = 12 - \_ \]

\[ 8 + 2 = 12 - \_ \]
\[ 3 + 3 = 13 - \_ \]

\[ 4 + 9 = 15 - \_ \]
\[ 6 + 7 = 15 - \_ \]

\[ 4 + 2 = \_ - 4 \]
\[ 4 + 4 = \_ - 2 \]

\[ 5 + 1 = \_ - 3 \]
\[ 6 + 3 = \_ - 2 \]

\[ 2 + 3 = \_ - 4 \]
\[ 3 + 5 = \_ - 7 \]

How can you make the value of this side equal 5?

The value of this side equals 5.

<table>
<thead>
<tr>
<th>TOTAL POINTS</th>
<th>NUMBER CORRECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>
Fill in the missing numerals.

\[
\_ \_ + 5 = 14 - 7
\]

\[
3 + 3 = 10 - 4 \quad 6 + \_ 2 = 9 - 1
\]

\[
1 + 4 = 7 - 2 \quad 4 + \_ 5 = 12 - 3
\]

\[
2 + 6 = 11 - 3 \quad 5 + \_ 5 = 13 - 3
\]

\[
10 - \_ 3 = 4 + 3 \quad 11 - 5 = 1 + 5
\]

\[
13 - \_ 6 = 2 + 5 \quad 9 - 4 = 3 + 2
\]

\[
15 - \_ 10 = 2 + 3 \quad 10 - 2 = 4 + 4
\]

\[
11 - \_ 5 = 4 + 2 \quad 12 - 5 = 5 + 2
\]

For extra practice, do Page 15.
CET I

Fill in the blanks to make true number sentences.

7 + 3 = _____ − 7

5 + _____ = 7 − 1

_____ − 4 = 6 + 2

16 − 5 = 9 + _____

12 − 8 = _____ + 1

3 + 7 = 14 − _____

_____ − 2 ÷ 7 + 9

5 + _____ = 8 − 1
Fill in the missing numerals.

\[ 6 + ? = 8 \]

You are on 6.

Take \( \frac{2}{2} \) steps to 8.

\[ 6 + 2 = 8 \]

\[ ? + 5 = 9 \]

Here you are on 5.

Take \( \frac{4}{4} \) steps to 9.

\[ \underline{7} + 5 = 9 \]

\[ 2 + \underline{7} = 9 \]

\[ \underline{6} + 4 = 10 \]

\[ 5 + 3 = 8 \]

\[ \underline{6} + 1 = 7 \]

\[ 7 + \underline{3} = 10 \]

\[ \underline{4} + 2 = 6 \]
Fill in the missing numerals.

\[ 8 - \_ = 5 \]

You are on 8.

Take \( \frac{3}{3} \) steps back to 5.

\[ 8 - 3 = 5 \]

\[ ? - 2 = 7 \]

Here are the 2 which were taken away → ||

Here are the 7 you have left → ||||| |

Count them.

\[ 9 - 2 = 7 \]

\[ 10 - 2 = 8 \]

\[ 7 - 5 = 2 \]

\[ 4 - 1 = 3 \]

\[ 16 - 7 = 9 \]

\[ 11 - 2 = 9 \]

\[ 10 - 3 = 7 \]

\[ 10 \_ 6 \_ = 10 \]

\[ 9 - 6 = 3 \]
Fill in the missing numerals.

\[
\begin{align*}
7 + 3 &= 15 - 5 \\
9 - 5 &= 2 + 2
\end{align*}
\]

The value of this side equals 10.

\[? + 3 = 10\]

\[? - 5 = 4\]

\[
\begin{align*}
5 + 4 &= 12 - 3 \\
9 - 3 &= 2 + 4 \\
3 + 8 &= 16 - 5 \\
10 - 3 &= 4 + 3 \\
4 + 2 &= 12 - 6 \\
8 - 2 &= 3 + 3 \\
1 + 4 &= 8 - 3 \\
16 - 10 &= 1 + 5 \\
1 + 7 &= 11 - 3 \\
18 - 8 &= 5 + 5
\end{align*}
\]
Fill in the blanks to make true number sentences.

16 - 4 = ____ + 9

2 + ____ = 17 - 2

____ + 3 = 13 - 4

15 - 2 = 6 + ____

18 - 0 = ____ + 11

12 - ____ = 5 + 6

5 + 3 = 14 - ____

____ 8 = 2 + 6
OBJECTIVE: Fills in a missing addend to complete two-step equations which combine addition and subtraction expressions. Sums to 18.

STANDARD TEACHING SEQUENCE

Page | Supplementary Material
--- | ---
1. Uses number line to supply missing addend in one-step equations. | 13
2. Uses number line to supply missing addend in one-step equation. | 14
3. Supplies missing addends in one-step equations; no number line. | 14
4. Uses number line to supply missing numeral in subtraction equations. | 15
5. Uses number line and counting to supply missing numeral in subtraction equations. | 15
6. Supplies missing numerals in one-step subtraction equations. | 16
7. Supplies missing numerals in sequences of one-step subtraction equations. | 16
8. Supplies missing numerals in sequences of one-step addition and subtraction equations. | 16
9. Supplies a numeral on the addition side of a two-step equation which combines addition and subtraction. | 16
10. Supplies numeral on the subtraction side of a two-step equation. | 16
11. Supplies numerals in two-step equations. | 16
12. CET I. | 16
13. CET II. | 16

Circle pages that are to be done.
Teaching Aids:

- Instructo words, numerals, symbols
- Add-a-Count scale
- Counting sticks, cubes
- Peg boards and pegs
- Abacus sets
- Checkit cards (6A - 6F)
- Ideal relationship cards
- Help Yourself Flash Cards
This is the Posttest which has been completed by John and corrected by the Aide.

Analyze the Posttest results and make a decision about John's mastery of this unit.

Complete the record of John's work in the C-COP unit by entering the required information on the first Prescription Sheet.
LEVEL C
COMBINATION OF PROCESSES

Developed by The Testing and Evaluation Staff, Learning Research and Development Center, University of Pittsburgh; Richard Cox, Ph.D., Director

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DEVELOPMENTAL EDITION
Directions: Add or subtract, as indicated by the sign.

68
- 18
50

43
+ 51
94

27 - 12 = 15

38 + 60 = 98

49
- 10
39

35
+ 44
79
### Directions: Add or subtract.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 yards + 3 yards</td>
<td>7 yards</td>
</tr>
<tr>
<td>11 cents + 5 cents</td>
<td>16 cents</td>
</tr>
<tr>
<td>17 dozen - 4 dozen</td>
<td>13 dozen</td>
</tr>
<tr>
<td>4 feet + 7 feet</td>
<td>11 feet</td>
</tr>
<tr>
<td>12 yards - 1 yard</td>
<td>11 yards</td>
</tr>
<tr>
<td>8 feet - 3 feet</td>
<td>5 feet</td>
</tr>
<tr>
<td>10 inches + 3 inches</td>
<td>13 inches</td>
</tr>
</tbody>
</table>
Directions: Solve each problem.

On Saturday John’s father spent 3 hours mowing the lawn and 4 hours trimming the hedge. How long did John’s father work in the yard Saturday? 7 hours

Dick had 15 cents to spend. He bought a toy truck for 12 cents. How much did he have left? 3 cents

Jane had a red pencil that was 6 inches long and a green pencil that was 11 inches long. How much longer was Jane’s green pencil than her red pencil? 5 inches

Bill colored 2 dozen Easter eggs and his mother colored 5 dozen. How many dozen colored Easter eggs did Bill and his mother have altogether? 7 dozen
Directions: Put $>$, $<$, or $=$ in each circle to make a true number sentence.

3 hours + 5 hours $\quad = \quad$ 6 hours + 2 hours

16 inches - 5 inches $\quad > \quad$ 4 inches + 6 inches

9 dimes - 4 dimes $\quad = \quad$ 3 dimes + 2 dimes

6 yards + 9 yards $\quad < \quad$ 18 yards - 1 yard

8 pennies - 5 pennies $\quad > \quad$ 9 pennies - 7 pennies

Directions: Put $=$ or $\neq$ in each circle to make a true number sentence.

9 inches + 3 inches $\quad = \quad$ 10 inches + 2 inches

6 dimes + 2 dimes $\quad \neq \quad$ 10 dimes - 4 dimes
Directions: Put + or – in each circle to make a true number sentence.

7 [ ] 6 = 1

9 [ ] 6 = 3

6 [ ] 7 = 13

13 [ ] 3 = 10

4 [ ] 3 = 7
Directions: Fill in the blanks to make each number sentence true.

2 + 5 = 10 - 3

6 + 1 = 12 - 7

2 - 0 = 9 - 7

16 - 12 = 3 + 1

18 - 6 = 8 + 6
# Student Name

<table>
<thead>
<tr>
<th>Grade</th>
<th>Unit</th>
<th>Room</th>
<th>Unit Dates</th>
<th>Days Worked</th>
</tr>
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</table>

## Skill Booklets

<table>
<thead>
<tr>
<th>Date</th>
<th>Pres. Init. No.</th>
<th>Skill</th>
<th>Page No.</th>
<th>Inst. Tech Codes</th>
<th>Score</th>
<th>Max. Points</th>
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<tbody>
<tr>
<td>13-16</td>
<td>17-19</td>
<td>S 20-21</td>
<td>S 22-57</td>
<td>S 58-71</td>
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## Curriculum Test

<table>
<thead>
<tr>
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<th>Part 2</th>
<th>SC's Init.</th>
<th>Days Worked</th>
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<tbody>
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<tr>
<td>S 72-73</td>
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## Pre and Post Test Scores

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## Code: Instructional Technique

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<tr>
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</tr>
<tr>
<td>02</td>
<td>Peer Tutor</td>
</tr>
<tr>
<td>03</td>
<td>Small Group (2-10)</td>
</tr>
<tr>
<td>04</td>
<td>Large Group (11-Up)</td>
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<tr>
<td>05</td>
<td>Seminar</td>
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<td>06</td>
<td>CURR. TEXTS</td>
</tr>
<tr>
<td>07</td>
<td>OTHER TEXTS</td>
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<td>08</td>
<td>FILM STRIPS</td>
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<tr>
<td>09</td>
<td>RECORDS, TAPES</td>
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<td>10</td>
<td>RESEARCH</td>
</tr>
<tr>
<td>11</td>
<td>TUTOR OF OTHERS</td>
</tr>
<tr>
<td>12</td>
<td>OTHERS</td>
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## Overflow

<table>
<thead>
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<th>Instructional Technique</th>
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<td>U. &amp; S. 79</td>
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## Key:

- **U**: in Column 80 (Unit Card)
- **S**: in Column 80 (Skill Card)
**Mathematics Prescription Sheet**

**Student Name:**

**Student Number:**

**Grade:**

**Room:**

**Unit:**

**Unit Dates**
- **Unit Began:** U. 13-16
- **Unit Ended:** U. 17-20

**Days Worked:** U. 21-22

**School Calendar**
- **Began:** U. 23-25
- **Ended:** U. 26-29

### Skill Booklets

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<td>S 17-19</td>
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<td>S 22-57</td>
<td>S 58-71</td>
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### Curriculum Test

- **Part 1:** Score: S 72-73
- **Part 2:** Score: S 74-75

### Days Worked

- **SC's Worked:**

### Instructional Technique Codes

- 01: Teacher Tutor
- 02: Peer Tutor
- 03: Small Group (2-10)
- 04: Large Group (11-Up)
- 05: Seminar
- 06: Curr. Texts
- 07: Other Texts
- 08: Film Strips
- 09: Records, Tapes
- 10: Research
- 11: Tutor of Others
- 12: Others
- 13: Overflow
- 14: Keypunch Sample

**Unit Card:** "U" in Column 80
**Skill Card:** "S" in Column 80

**Pre and Post Test Scores**

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<th>Enter Pre % Post % % Post %</th>
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**Page of Calendar:** 23-26

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<th>POST</th>
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<tr>
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**PRE AND POST TEST SCORES**

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BEGAN: U. 23-25
ENDED: U. 26-28
Worked: 5/5

**SKILL BOOKLETS**

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<th>PRES</th>
<th>SKILL</th>
<th>PAGE</th>
<th>INST. TECH. CODES</th>
<th>SC'S</th>
<th>MAX. POINTS</th>
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<tr>
<td>S. 13-16</td>
<td>17-19</td>
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<td>S. 58-71</td>
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**CURRICULUM TEST**

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<th>PART 2</th>
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Section IV

DEVELOPING A PRESCRIPTION

CASE STUDY - TYPE 4

EILEEN O'BRIEN

E-NUMERATION
DIRECTIONS

This case study is organized in a format that draws upon your experience in writing prescriptions.

The following data is provided for you:

- Placement Profile
- Placement - Level E
- Unit Test Record
- Analysis of Student Behavior
- Unit Pretest - E-Numeration
- Unit Posttest - E-Numeration

You will analyze this information and use it to write the unit prescription for Eileen in E-Numeration.

Use the STS booklets for Skills 1-8 to simulate Eileen's work on the skill sheets you prescribe. (pages 150-348)

Your prescriptions should reflect the variety of instructional decisions and settings that you have been working with to this point.

It will be helpful if you keep a record of your instructional decisions as you work through this case study. The form of this record is your decision.

Your prescriptions should be recorded on the blank Prescription Sheets located at the back of this case study.
Eileen's Placement Profile is on page 154.

It indicates the units in which Eileen needed work. Study the E-Level Placement Test on page 155.

Refer to the Unit Test Record on pages 156-7. It shows Eileen's unit mastery to this point.

Use the Unit Test Record and the Placement Profile as a guide to assigning the next Pretest to Eileen.
## ARITHMETIC PLACEMENT SCORE PROFILE

### Student Name: Eileen O'Brien

### Student Number: 9999

## Keypunch Sample

<table>
<thead>
<tr>
<th>P. 14-15</th>
<th>P. 16</th>
<th>P. 17-18</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH. AREA CODE</td>
<td>PLACED AT LEVEL</td>
<td>% OF PLACEMENT</td>
</tr>
<tr>
<td>01</td>
<td>B</td>
<td>85</td>
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</tbody>
</table>

## Placement Levels B-I

<table>
<thead>
<tr>
<th>Mathematics Area</th>
<th>Date of Test</th>
<th>Math Area Code</th>
<th>Placement Levels B-I</th>
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</thead>
<tbody>
<tr>
<td>Numeration</td>
<td>9/20</td>
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<td>Place Value</td>
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<td>Combination of Processes</td>
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<td>Addition and Subtraction</td>
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### Key Areas

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<th>Max. Pts.</th>
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<td>Addition and Subtraction</td>
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</table>
Skill 3 — Directions: Round each number below to the nearest hundred.

499 \underline{500}
30,093 \underline{30,000} X
2 \underline{0}

Skill 7 — Directions: Write the decimal numerals below as mixed fractions.

7.04 \underline{7 \frac{4}{100}}
26.524 \underline{26 \frac{524}{1000}} X
<table>
<thead>
<tr>
<th>NAME</th>
<th>Eileen O'Brien</th>
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<tr>
<td>NUMBER</td>
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### Mathematics Unit Test Record

#### Numeration (91)

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<th>Level</th>
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**Update and Place in Student Folder.**
**NAME:** Eileen O'Brien  
**NUMBER:** 9999  
**CLASS:** 5

### Fractions (79)

<table>
<thead>
<tr>
<th>Level</th>
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**Placed at Level:** D  
**Max. Pts.:** 15/15  
**Score:** 13/15  
**Date:**

### Money (69)

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<th>Level</th>
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**Placed at Level:** E  
**Max. Pts.:** 10/10  
**Score:** 8/10  
**Date:**

### Time (19)

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**Placed at Level:** E  
**Max. Pts.:** 10/10  
**Score:** 8/10  
**Date:**

### Systems of Measurement (11)

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**Placed at Level:** D  
**Max. Pts.:** 10/10  
**Score:** 8/10  
**Date:**

### Geometry (12)

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**Placed at Level:** F  
**Max. Pts.:** 10/10  
**Score:** 8/10  
**Date:**

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</table>

**Placed at Level:**

### Addition and Subtraction (34)

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<th>4</th>
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<tbody>
<tr>
<td>Level</td>
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<td>4</td>
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</table>

**Placed at Level:**

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**UPDATE AND PLACE IN STUDENT FOLDER.**
1. The behaviors which will help Eileen’s learning......

   Eileen is a very good reader; she can work independently on all materials.

2. The behaviors which will hamper Eileen’s learning......

   Eileen places severe demands on herself; she strives for perfection in her work and becomes very defeated by the occasional errors she makes.

3. The new behaviors which Eileen will learn in conjunction with the IPI math learnings......

   Eileen should learn to diagnose her own learning needs and analyze her errors.
Describe how your prescriptions will attempt to reflect these behaviors......

1. _______________________________________________________________________

2. _______________________________________________________________________

3. _______________________________________________________________________
This is a copy of the Pretest completed by Eileen and corrected by the Aide.

Record (in the role of Aide) the Pretest results on the first Prescription Sheet in your packet.

Analyze the Pretest results and write the first prescription.
Developed by The Testing and Evaluation Staff, Learning Research and Development Center, University of Pittsburgh; Richard Cox, Ph.D., Director

APPLETON-CENTURY-CROFTS Division of Meredith Publishing Company

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DEVELOPMENTAL EDITION
Directions: Fill in the blanks in each row, counting forward by 1's.

235,198, 235,199, 235,200, 235,201

54,684, 54,685, 54,686

799,997, 799,998, 799,999, 799,991

986,252, 986,253, 986,254, 986,255

29,999, 29,999, 29,999, 29,999
Directions: Circle all of the even numbers.

5  27  60  458  1,000  567

Directions: Put an X on the word that is the correct ending for each sentence.

The sum of two even numbers is . . .

\[ \text{even} \quad \text{odd} \]

The product of two odd numbers is . . .

\[ \text{even} \quad \text{odd} \quad \text{odd} \]

The difference between an odd and even number is . . .

\[ \text{even} \quad \text{odd} \]

The sum of two odd numbers is . . .

\[ \text{even} \quad \text{odd} \quad \text{x} \]
Directions: Round each of the numbers to the nearest hundred.

697 700
415 400
41,666 42,000 x
20,031 20,000

Directions: Estimate the answers to the problems below by first rounding the numbers to the nearest ten and then adding or subtracting. Circle the correct estimated answer.

29 books + 12 books are how many books?

43 books 40 books 30 books 20 books x

348 plus 1,309?

1,640 1,650 1,660 1,670 x

Sarah gave away 27 of her 42 jacks. How many did she have left?

40 30 20 10

Sam lost 48 of his 103 marbles. How many marbles did Sam have left?

40 50 60 70
Directions: Write the standard numerals for the following number words.

six hundred seven  
three thousand fourteen  
one thousand nine hundred twenty-seven  
nine thousand three

Directions: Write the following numbers in words.

576  five hundred seventy-six
6,005  six thousand five
2,711  two thousand seven hundred eleven
9,401  nine thousand four hundred one
Directions: Write the equivalent decimal fraction for each of these fractions.

\[ \frac{5}{10} = \frac{5}{10} \]

\[ 3 \frac{7}{10} = 3.07 \times \]

\[ 48 \frac{6}{100} = 48.006 \times \]

\[ 871 \frac{31}{100} = 871.031 \times \]

Directions: Write the equivalent fraction for each of these decimal fractions.

\[ .4 = \frac{4}{10} \]

\[ .39 = \frac{39}{100} \times \]

\[ 36.9 = 36 \frac{9}{100} \times \]

\[ 81.07 = 81 \frac{7}{1000} \times \]
Directions: Write these decimal numbers as mixed fractions.

4.07 $\frac{7}{1000} \times$

25.642 $\frac{642}{1000}$

76.38 $\frac{38}{100}$

Directions: Write these decimal numbers as common fractions.

5.2 $\frac{2}{10} \times$

9.971 $\frac{971}{10} \times$

8.43 $\frac{43}{1000} \times$

Directions: Draw an arrow to show the location on the number line of each decimal number.

1.5

26.25
Directions: Write each row of numbers from the smallest to the largest.

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>4.01</td>
<td>4.10</td>
<td>0.41</td>
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<td>smallest</td>
<td>largest</td>
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<td>.75</td>
<td>.075</td>
<td>7.5</td>
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<tr>
<td>32.6</td>
<td>3.26</td>
<td>3.06</td>
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<td>smallest</td>
<td>largest</td>
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<td>9.930</td>
<td>99.30</td>
<td>.993</td>
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<td>.125</td>
<td>12.5</td>
<td>1.25</td>
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</tbody>
</table>

168
Standard Teaching Sequence Booklet

TEACHER'S EDITION

LEVEL E

NUMERATION (01)

SKILL 1

Based upon materials developed by The Mathematics Curriculum Staff, Learning Research and Development Center, University of Pittsburgh; Joseph L. Lipson, Ph.D., Director; Edith Kohut; Barbara Thomas.

Written by the staff of Appleton-Century-Crofts under the direction of Jerome D. Kaplan, Ed.D., Teachers College, Columbia University

Appleton-Century-Crofts Division of Meredith Publishing Company

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DEVELOPMENTAL EDITION
TO THE STUDENT

Can you count to one million?

999,997, _____, _____, _____

You will learn to read and write large numbers in this booklet.

Answers

999,997, 999,998, 999,999, 1,000,000
Count your way up the number steps, filling in the missing numerals.

Fill in the missing numerals.
Fill in the missing numerals.

3,998 3,999 4,000 4,002 4,003 4,004 4,005 4,006

8,147 8,148 8,149 8,150 8,151 8,152 8,153 8,154 8,155
You have learned to write and count numerals to the thousands place.

9,999 has 4 digits. It is a numeral which uses the thousands place. After 9,999 we need another place, the ten thousands place.

The first numeral that uses the ten thousands place is 10,000.

Fill in the missing numerals.

9,997, 9,998, 9,999, 10,001, 10,002, 10,003, 10,004

10,326 10,327 10,329 10,330 10,332 10,333 10,334

10,944 10,945 10,946 10,947 10,948 10,949 10,950 10,951 10,952

<table>
<thead>
<tr>
<th>TOTAL POINTS</th>
<th>NUMBER CORRECT</th>
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<th>UNIT</th>
<th>SKILL</th>
<th>PAGE</th>
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<tbody>
<tr>
<td>E</td>
<td>01</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>
Fill in the missing numerals.

For extra practice, do Page 12.
You have learned to write and count the numerals to the ten thousands place.

After 99,999 we add another place, the hundred thousands place. The first numeral using the hundred thousands place is 100,000.

Fill in the missing numerals.

99,996 99,997 99,998 99,999 100,000 100,001 100,002 100,003

141,219 141,220 141,221 141,222 141,223 141,224 141,225
Fill in the missing numerals.

```
326,738
  326,739
      326,740  326,741
          326,742
              326,743
                   326,744
                        326,745
                             326,746

843,546 843,547 843,548 843,549 843,550 843,551 843,552 843,553
```

For extra practice, do Page 13.
How many thousands are in these numerals?

1,000  
100,000  
10,000  
360,402  
87,005  
5,612  
411,093  

TOTAL POINTS  NUMBER CORRECT
7

LEVEL  UNIT  SKILL  PAGE
E  01  1  7
You have learned to count numerals to the hundred thousands place. After 999,999, we add another place, the millions place. The first numeral using the millions place is 1,000,000.

Fill in the missing numerals.

For extra practice, do Page 14.
Fill in the missing numerals.

10,008 10,009 10,010 10,012 10,013

1,000,528 1,000,529 1,000,530 1,000,531 1,000,532

100,400 100,402 100,403 100,404 100,405

99,998 100,000 100,001 100,002 100,004

TOTAL POINTS: 14

LEVEL: E
UNIT: 01
SKILL: 1
PAGE: 9
Fill in the missing numerals.

999,999, 1,000,000, 1,001,001, 1,002,002, 1,003,003, 1,004,004, 1,005,005, 1,006,006

1,001,789, 1,001,790, 1,001,791, 1,001,792, 1,001,793, 1,001,794, 1,001,795, 1,001,796, 1,001,797


For extra practice, do Page 15.
CET I

Fill in the missing numerals.

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<td>632,009</td>
<td></td>
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<tr>
<td>13,253</td>
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<tr>
<td>324,997</td>
<td></td>
<td>324,999</td>
<td></td>
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<tr>
<td>999,995</td>
<td></td>
<td></td>
<td>999,998</td>
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</tr>
<tr>
<td>599,999</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>6,022</td>
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<td>6,025</td>
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</table>

If the number is odd, write 0 on the blank. If it is even, write E.

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<tr>
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<tr>
<td>227</td>
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<td>66,663</td>
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<tr>
<td>354</td>
<td></td>
<td>872,910</td>
<td></td>
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<tr>
<td>74,992</td>
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<td>543,241</td>
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</table>
Fill in the missing numerals.

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<thead>
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<tbody>
<tr>
<td>10,001</td>
<td>10,003</td>
<td>10,004</td>
<td>10,006</td>
<td>10,007</td>
<td>10,008</td>
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<td>57,718</td>
<td>57,720</td>
<td>57,721</td>
<td>57,722</td>
<td>57,724</td>
<td>57,725</td>
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**TOTAL POINTS** | **NUMBER CORRECT**
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11 |   

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<th>SKILL</th>
<th>PAGE</th>
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<tbody>
<tr>
<td>E</td>
<td>0.1</td>
<td>1</td>
<td>12</td>
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</table>
Fill in the missing numerals.
Fill in the missing numerals.

You are going from the hundred thousands place to the millions place.

999,996


1,000,000

1,000,002
Fill in the missing numerals, starting here.

TOTAL NUMBER
POINTS CORRECT

LEVEL UNIT SKILL PAGE
E 01 1 15
Fill in the missing numerals.

225,299, _____, 225,301, _____
77,840, _____, _____, 77,843
109,998, 109,999, _____, _____
803,012, _____, 803,014, _____
799,997, _____, _____, _____
5,334, _____, _____, _____

If the number is odd, write 0 in the blank. If it is even, write E.

729,226 _____ 4,703 _____
82 _____ 36,005 _____
347 _____ 420 _____
OBJECTIVE: Counts to 1,000,000 by reading or writing short sequences of numerals from any starting point.

STANDARD TEACHING SEQUENCE

<table>
<thead>
<tr>
<th>Page</th>
<th>Supplementary Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Counts in sequences, 996 - 1,408, filling in the missing numerals.</td>
</tr>
<tr>
<td>2.</td>
<td>Fills in missing numerals in sequences, 3,998 - 8,155.</td>
</tr>
<tr>
<td>3.</td>
<td>Introduction to ten thousands place. Fills in missing numerals, 9,997 - 10,952.</td>
</tr>
<tr>
<td>4.</td>
<td>Fills in missing numerals, 35,014 - 88,514.</td>
</tr>
<tr>
<td>5.</td>
<td>Introduction to hundred thousands place. Fills in missing numerals, 99,996 - 141,225.</td>
</tr>
<tr>
<td>6.</td>
<td>Fills in missing numerals, 326,738 - 843,553.</td>
</tr>
<tr>
<td>7.</td>
<td>Is asked how many thousands are in various numerals, e.g., 87,005 = 87.</td>
</tr>
<tr>
<td>8.</td>
<td>Introduction to millions place. Fills in missing numerals, 999,995 - 1,000,002</td>
</tr>
<tr>
<td>9.</td>
<td>Fills in missing numerals in various sequences.</td>
</tr>
<tr>
<td>10.</td>
<td>Fills in missing numerals in various sequences.</td>
</tr>
<tr>
<td>11.</td>
<td>CET I.</td>
</tr>
<tr>
<td>12.</td>
<td>CET II.</td>
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</table>

Circle pages that are to be done.
Textbook Resources:

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<tr>
<th>Book</th>
<th>Teaching Pages</th>
<th>Practice Pages</th>
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<tbody>
<tr>
<td>Harcourt, Brace &amp; World, 1966</td>
<td></td>
<td>37</td>
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<tr>
<td><em>Elementary Mathematics</em> - 4</td>
<td></td>
<td></td>
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<tr>
<td>Harcourt, Brace &amp; World, 1966</td>
<td></td>
<td>15 (problems 7 - 16)</td>
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<tr>
<td><em>Elementary Mathematics</em> - 5</td>
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<td>16, 27</td>
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<tr>
<td><em>Elementary Mathematics</em> - 6</td>
<td></td>
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</table>
TO THE STUDENT

E means an even number and O means an odd number. Put O or E in the box to complete each equation.

\[
\begin{align*}
O + E &= \underline{\phantom{0}} \\
E - E &= \underline{\phantom{0}} \\
E \times O &= \underline{\phantom{0}} \\
O - O &= \underline{\phantom{0}} 
\end{align*}
\]

You will learn about odd and even numbers in this booklet.

Answers

\[
\begin{align*}
O + E &= O \\
E \times O &= E \\
E - E &= E \\
O - O &= E 
\end{align*}
\]
Look at this number line and complete the jumps.

Now use the jumps that you made to complete this table.

These numbers are called Even numbers.

Now complete the jumps on this number line.

Look where you jumped to complete this table.

These numbers are called Odd numbers.
Fill in the missing even numbers.

8, 10, 12, 14, 16, 18, 20.
Fill in the missing odd numbers.

15 7 9 11 13
15 17 19 21 23 25
27 29 31 33 35
Circle the odd numbers below.

48  63  32  14  87  43
23  19  35  99  17
3  7  98

Put a \( \checkmark \) on each even number below.

35  41  19  27

For extra practice, do Page 23!
Fill in the missing **even** numbers. Each row is a new problem.

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<td>62</td>
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<td>244</td>
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<tr>
<td>554</td>
<td>556</td>
<td>558</td>
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Look at the numbers you have written. What 5 numerals always appear in the **ones** place?

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<td>0</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
</tr>
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</table>

The rule is that **even** numbers always end in 0, or 2, or 4, or 6, or 8.
Fill in the missing odd numbers.

21, 23, 25, 27, 29

81, 83, 85, 87, 89

231, 233, 235, 237, 239

455, 457, 459, 461, 463

Look at the numbers you have written. What 5 numerals always appear in the ones place?

1, 3, 5, 7, 9

The rule is that odd numbers always end in 1, or 3, or 5, or 7, or ___.

For extra practice do Page 24.
Write even or odd in the blanks to describe the number.

3 is an odd number. 4 is an even number.
The sum of 3 + 4 is an odd number.

2 is an even number. 8 is an even number.
The sum of 2 + 8 is an even number.

9 is an odd number. 3 is an odd number.
The sum of 9 + 3 is an even number.

6 is an even number. 1 is an odd number.
The sum of 6 + 1 is an odd number.

7 is an odd number. 11 is an odd number.
The sum of 7 + 11 is an even number.

20 is an even number. 8 is an even number.
The sum of 20 + 8 is an even number.
If you add an odd number to an odd number, you get an even number as the sum.

Fill in the spaces.

\[ 7 + 5 = 12 \quad 11 + 11 = 22 \]
\[ 9 + 3 = 12 \quad 41 + 7 = 48 \]
\[ 23 + 55 = 78 \]
\[ 71 + 31 = 102 \quad 3 + 5 = 8 \]
\[ 65 + 7 = 72 \quad 401 + 69 = 470 \]

The sum of two odd numbers is an even number.
If you add an even number to an even number, you get an even number as the sum.

Finish these number sentences.

12 + 8 = 20
40 + 10 = 50

16 + 2 = 18

2 + 4 = 6
34 + 12 = 46

22 + 88 = 110

78 + 6 = 84
94 + 2 = 96

The sum of two even numbers is an even number.
If you add an **even** number to an **odd** number, the sum is an **odd** number.

\[
9 + 12 = 21 \\
11 + 8 = 19
\]

\[
31 + 4 = 35
\]

If you add an **odd** number to an **even** number, the sum is an **odd** number.

\[
30 + 1 = 31 \\
14 + 7 = 21
\]

\[
10 + 9 = 19
\]

For extra practice, do Page25.
Write the correct word, even or odd, in each space.

7 is an odd number. 3 is an odd number.
7 – 3 is an even number.

9 is an odd number. 4 is an even number.
9 – 4 is an even number.

10 is an even number. 6 is an even number.
10 – 6 is an even number.

18 is an even number. 7 is an odd number.
18 – 7 is an odd number.

12 is even number. 2 is an even number.
12 – 2 is an even number.

15 is an odd number. 5 is odd number.
15 – 5 is an even number.
If you subtract an odd number from an odd number, your result is an even number.

Solve these problems.

\[ 7 - 5 = \underline{2} \quad 19 - 11 = \underline{8} \]

\[ 45 - 33 = \underline{12} \]

\[ 201 - 1 = \underline{200} \quad 97 - 3 = \underline{94} \]

\[ 59 - 21 = \underline{38} \]

The difference between two odd numbers is an even number.
If you subtract an even number from an even number, the difference is an even number.

Find the differences.

\[ 40 - 10 = 30 \]
\[ 12 - 8 = 4 \]
\[ 16 - 2 = 14 \]
\[ 88 - 44 = 44 \]
\[ 34 - 12 = 22 \]
\[ 78 - 6 = 72 \]

The difference between two even numbers is an even number.
If you subtract an even number from an odd number, the difference is an odd number.

\[
29 - 2 = \underline{27} \quad 15 - 8 = \underline{7}
\]

\[
11 - 10 = \underline{1}
\]

If you subtract an odd number from an even number, the difference is an odd number.

\[
12 - 9 = \underline{3} \quad 56 - 13 = \underline{43}
\]

\[
72 - 3 = \underline{69}
\]

For extra practice, do Page 26.
Write even or odd in each space.

2 is an **even** number. 4 is an **even** number.

The product of $2 \times 4$ is an **even** number.

3 is an **odd** number. 5 is an **odd** number.

The product of $3 \times 5$ is an **odd** number.

7 is an **odd** number. 1 is an **odd** number.

The product of $7 \times 1$ is an **odd** number.

6 is an **even** number. 3 is an **odd** number.

The product of $6 \times 3$ is an **even** number.

5 is an **odd** number. 4 is an **even** number.

The product of $5 \times 4$ is an **even** number.

10 is an **even** number. 2 is an **even** number.

The product of $10 \times 2$ is an **even** number.

For extra practice, do Page 27.
If you multiply an odd number by an odd number, your result is an odd number.

\[
3 \times 7 = 21 \\
5 \times 3 = 15 \\
11 \times 1 = 11 \\
3 \times 9 = 27 \\
7 \times 5 = 35 \\
5 \times 9 = 45
\]

The product of two odd numbers is an odd number.
If you multiply an even number by an even number, your result is an even number.

\[4 \times 8 = \_32\_\]
\[6 \times 2 = \_12\_\]
\[4 \times 2 = \_8\_\]
\[4 \times 4 = \_16\_\]
\[4 \times 6 = \_24\_\]
\[2 \times 2 = \_4\_\]

The product of two even numbers is an even number.
If you multiply an odd number and an even number, your result is an even number.

\[3 \times 12 = 36\] \[5 \times 2 = 10\]

\[3 \times 6 = 18\]

If you multiply an even number by an odd number, your result is an even number.

\[10 \times 5 = 50\] \[8 \times 3 = 24\]

\[10 \times 3 = 30\]

For extra practice, do Page 28.
Make these statements true by writing odd or even in the spaces.

\[ E = \text{even number} \]
\[ O = \text{odd number} \]

- \( E + E \) means the sum of 2 even numbers.

- \( E + O \) means the sum of an even number and an odd number.

- \( O + O \) means the sum of 2 odd numbers.

- \( E \times E \) means the product of 2 even numbers.

- \( E - O \) means an odd number subtracted from an even number.

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<th>NUMBER CORRECT</th>
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<tbody>
<tr>
<td>E</td>
<td>01</td>
<td>2</td>
<td>19</td>
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</table>
Write E or O in the spaces to complete these equations.

E means an even number.

O means an odd number.

E + E = ___
E + O = ___
O + O = ___
E - E = ___
E - O = ___
O - O = ___
E \times E = ___
E \times O = ___
O \times O = ___

TOTAL POINTS
NUMBER CORRECT
9

LEVEL UNIT SKILL PAGE
E 01 2 20

210
Fill in the spaces with E or O.

E means an even number.
O means an odd number.

\[(E + E) + E = \underline{E} \]
\[(E + O) + O = \underline{E} \]
\[(E \times O) \times E = \underline{E} \]
\[(O \times O) \times E = \underline{E} \]
\[(E - O) - E = \underline{O} \]
\[E - E = \underline{E} \]
\[(O - E) - O = \underline{E} \]
\[(E \times E) \times O = \underline{E} \]
CET I

Write 0 for odd or E for even to show what the answer will be.

\[ \begin{align*}
0 + E &= \_\_ \quad &0 - O &= \_\_ \\
O + O &= \_\_ \quad &E \times O &= \_\_
\end{align*} \]

Draw lines to match the examples with the rules.

\[ \begin{align*}
2 \times 2 &= 4 &E - O &= 0 \\
5 - 2 &= 3 &O \times O &= 0 \\
6 + 2 &= 8 &E \times E &= E \\
8 - 3 &= 5 &O - E &= O \\
3 \times 5 &= 15 &E + E &= E
\end{align*} \]

Circle the best estimated answer.

There were 118 girls and 21 boys on the playground.

About how many boys and girls were on the playground?

100 \hspace{1cm} 120 \hspace{1cm} 140

Tom sold 158 tickets for the game one day, and 119 the next day. About how many tickets did he sell?

320 \hspace{1cm} 290 \hspace{1cm} 260
Start at zero and count by twos.

0, 2, 4, 6, 8,
10, 12, 14, 16, 18

How many even numbers are in the table? 10

How many odd numbers are in the table? 0

Start at 1 and count by twos.

1, 3, 5, 7, 9,
11, 12, 15, 17, 19

How many even numbers are in the table? 0

How many odd numbers are in the table? 10
Put an X on the odd numbers on these number lines.

In the first line, look at each numeral you put an X on. Now look at the other numerals you put X's on.

What do you notice about odd numbers?

The answer: All odd numbers end in the digits 1, 3, 5, 7, or 9.
Circle odd or even to describe the numeral below.

Odd    Odd    Odd
Even    Even    Even
↓       ↓       ↓
3 + 5 = 8

Rule An odd number plus an odd number is an even number.

Odd    Odd    Odd
Even    Even    Even
↓       ↓       ↓
4 + 6 = 10

Rule An even number plus an even number is an even number.

Odd    Odd    Odd
Even    Even    Even
↓       ↓       ↓
7 + 2 = 9

Rule An odd number plus an even number is an odd number.
(Circle) odd or even to describe the numeral below.

Odd   Odd   Odd
Even   Even   Even

\[ 7 - 3 = 4 \]

**Rule**: An odd number minus an odd number is an even number.

Odd   Odd   Odd
Even   Even   Even

\[ 8 - 2 = 6 \]

**Rule**: An even number minus an even number is an even number.

Odd   Odd   Odd
Even   Even   Even

\[ 5 - 4 = 1 \]

**Rule**: An odd number minus an even number is an odd number.
Any number which is a product of 2 and another number is an even number.

Complete these equations.

\[
\begin{align*}
0 &= 2 \times 0 & 8 &= 2 \times 4 \\
2 &= 2 \times 1 & 10 &= 2 \times 5 \\
4 &= 2 \times 2 & 12 &= 2 \times 6 \\
6 &= 2 \times 3 & 14 &= 2 \times 7
\end{align*}
\]

The sum of any addition equation with the same two numbers as addends is an even number.

Complete these equations.

\[
\begin{align*}
4 &= 2 + 2 & 10 &= 5 + 5 \\
6 &= 3 + 3 & 12 &= 6 + 6 \\
8 &= 4 + 4 & 14 &= 7 + 7
\end{align*}
\]
Circle the correct word, *odd* or *even*, to describe the numeral below.

Odd   Odd   Odd
Even   Even   Even
↓      ↓      ↓
5 × 3 = 15

**Rule** An *odd* number times an *odd* number is an *odd* number.

Odd   Odd   Odd
Even   Even   Even
↓      ↓      ↓
4 × 6 = 24

**Rule** An *even* number times an *even* number is an *even* number.

Odd   Odd   Odd
Even   Even   Even
↓      ↓      ↓
9 × 6 = 54

**Rule** An *odd* number times an *even* number is an *even* number.
Write O for odd or E for even to show what the answer will be.

\[ E - E = \_ \quad O \times O = \_
\]
\[ E + O = \_ \quad O + O = \_
\]

Draw lines to match the examples with the rules.

\[ 2 \times 7 = 14 \quad O - O = E \]
\[ 4 \times 2 = 8 \quad O + E = O \]
\[ 9 + 4 = 13 \quad E - O = O \]
\[ 10 - 3 = 7 \quad E \times O = E \]
\[ 5 - 3 = 2 \quad E \times E = E \]

Circle the best estimated answer.

Dick had 178 pennies in his penny collection. Uncle Joe gave him 31 more. About how many did he have then?

210 240 190

Sally sold 31 bags of pretzels one day and 23 bags of pretzels another day. About how many bags of pretzels did she sell?

58 52 55
**LEVEL E, NUMERATION, SKILL 2**

**OBJECTIVE:** Identifies odd and even numbers and states rules for adding, subtracting, and multiplying two numbers; e.g., \( E + E = E \). Selects the rule when a numerical example is given and vice versa.

**STANDARD TEACHING SEQUENCE**

<table>
<thead>
<tr>
<th>Pages</th>
<th>Supplementary Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Skip-counts by twos, using a number line; is introduced to even and odd numbers.</td>
</tr>
<tr>
<td>2.</td>
<td>Fills in numerals for even numbers in short sequences.</td>
</tr>
<tr>
<td>3.</td>
<td>Fills in numerals for odd numbers in short sequences.</td>
</tr>
<tr>
<td>4.</td>
<td>Circles numerals for odd numbers, puts X's on numerals for even numbers.</td>
</tr>
<tr>
<td>5.</td>
<td>Fills in numerals for even numbers and writes endings for even numbers.</td>
</tr>
<tr>
<td>6.</td>
<td>Fills in numerals for odd numbers and writes endings for odd numbers.</td>
</tr>
<tr>
<td>7.</td>
<td>Writes 'even' or 'odd' to describe the addends and sums in additional problems.</td>
</tr>
<tr>
<td>8.</td>
<td>Completes examples and rule for addition of two odd numbers.</td>
</tr>
<tr>
<td>9.</td>
<td>Completes examples and rule for addition of two even numbers.</td>
</tr>
<tr>
<td>10.</td>
<td>Completes examples and rule for addition of even and odd numbers.</td>
</tr>
<tr>
<td>11.</td>
<td>Writes 'even' or 'odd' for addends and sums for subtraction problems.</td>
</tr>
<tr>
<td>12.</td>
<td>Completes examples and rule for subtraction of two odd numbers.</td>
</tr>
<tr>
<td>13.</td>
<td>Completes examples and rule for subtraction of two even numbers.</td>
</tr>
<tr>
<td>14.</td>
<td>Completes examples and rule for subtraction of even and odd numbers.</td>
</tr>
<tr>
<td>15.</td>
<td>Writes 'even' or 'odd' for factors and products in multiplication problems.</td>
</tr>
<tr>
<td>16.</td>
<td>Completes examples and rule for multiplication of two odd numbers.</td>
</tr>
<tr>
<td>17.</td>
<td>Completes examples and rule for multiplication of two even numbers.</td>
</tr>
<tr>
<td>18.</td>
<td>Completes examples and rule for multiplication of even and odd numbers.</td>
</tr>
<tr>
<td>19.</td>
<td>Completes statements using E and O by writing even or odd: adding, subtracting, and multiplying.</td>
</tr>
<tr>
<td>20.</td>
<td>Completes statements using E and O by supplying these symbols for even and odd.</td>
</tr>
<tr>
<td>21.</td>
<td>Completes statements using E and O by supplying these symbols for even and odd.</td>
</tr>
<tr>
<td>22.</td>
<td>CET I.</td>
</tr>
<tr>
<td></td>
<td>CET II.</td>
</tr>
</tbody>
</table>

Circle pages that are to be done.
Standard Teaching Sequence, Con't.
1967-68

Textbook Resources:

<table>
<thead>
<tr>
<th>Book</th>
<th>Teaching Pages</th>
<th>Practice Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harcourt, Brace &amp; World, 1966</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td><em>Elementary Mathematics</em> - 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Standard Teaching Sequence Booklet

TEACHER'S EDITION
LEVEL E
NUMERATION (01)
SKILL 3

Based upon materials developed by The Mathematics Curriculum Staff, Learning Research and Development Center, University of Pittsburgh; Joseph I. Lipson, Ph.D., Director; Edith Kohut; Barbara Thomas.

Written by the staff of Appleton-Century-Crofts under the direction of Jerome S. Kaplan, Ed.D., Teachers College, Columbia University

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DEVELOPMENTAL EDITION
TO THE STUDENT

Write in the missing numerals.

107,998, ________, ________, ________.

_______, ________, ________, 108,005.

When a word problem must be solved very rapidly, estimate, or approximate, the answer, by rounding the numbers to the nearest ten or hundred. Here is an example.

Stephen sold 289 tickets for the picnic one day, and 156 tickets the next day. About how many tickets did he sell?

(Estimate to tens.)

This booklet will show you how to solve problems by estimating.

Answers

450 tickets
These are multiples of 10.

\[ 6 \times 10 \quad 3 \times 10 \]
\[ 4 \times 10 = 40 \quad 7 \times 10 \]

Circle the multiples of ten which appear below.

\[ 3 \times 9 \]
\[ 3 \times 10 = 30 \]
\[ 4 \times 10 \]
\[ 8 \times 10 = 80 \]
\[ 9 \times 8 \]
\[ 7 \times 6 \]
\[ 8 \times 10 \]
\[ 12 \times 10 \]
\[ 70 \]
\[ 10 \times 6 \]
\[ 20 \]
\[ 50 \]

**TOTAL POINTS**: 14
**LEVEL**: E
**UNIT**: 01
**SKILL**: 3
**PAGE**: 1
A multiple of ten is the product of two numerals, such that one numeral is 10.

Circle the multiples of ten below.

- 60
- 32
- $6 \times 8$
- $10 \times 1$
- 50
- $10 \times 7$
- $11 \times 6$
- $8 \times 2$

- $8 \times 10$
- 70
- $9 \times 10$
- 81
- $5 \times 9$
- $3 \times 10$
- 30
- 21
12 is between 10 and ____ (what other multiple of 10?)

12 is nearer to ____ (10 or 20?)

A number is rounded to the nearest ten by finding the multiple of ten nearest to that number.

Write the multiple of ten nearest to the given numeral.

<table>
<thead>
<tr>
<th>Number</th>
<th>Nearest Ten</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>23</td>
<td>20</td>
</tr>
<tr>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>26</td>
<td>30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number</th>
<th>Nearest Ten</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>40</td>
</tr>
<tr>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td>34</td>
<td>30</td>
</tr>
<tr>
<td>17</td>
<td>20</td>
</tr>
</tbody>
</table>

Remember that if a numeral ends in five, it should always be rounded to the greater multiple of ten.

Round each of the following to the nearest ten.

<table>
<thead>
<tr>
<th>Number</th>
<th>Nearest Ten</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>50</td>
</tr>
<tr>
<td>75</td>
<td>80</td>
</tr>
<tr>
<td>15</td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number</th>
<th>Nearest Ten</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>85</td>
<td>90</td>
</tr>
<tr>
<td>95</td>
<td>100</td>
</tr>
</tbody>
</table>

For extra practice, do Page 14.
Round each of the following to the nearest ten:

77 \underline{80} \\
25 \underline{30} \\
49 \underline{50} \\
188 \underline{190} \\
155 \underline{160} \\
10,572 \underline{10,570} \\
16 \underline{20} \\
25 \underline{30} \\
3 \underline{0} \\
101 \underline{100} \\
1,165 \underline{1,170} \\
7 \underline{10} \\
99 \underline{100} \\
13,395 \underline{13,400}

For extra practice, do Page 15.

<table>
<thead>
<tr>
<th>TOTAL POINTS</th>
<th>NUMBER CORRECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>UNIT</th>
<th>SKILL</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>01</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
These are multiples of 100.

\[3 \times 100 = 300\]

\[42 \times 100 = 4200\]

\[6 \times 100 = 600\]

\[100 \times 73 = 7300\]

\[38 \times 100 = 3800\]

\[500\]

Circle the multiples of 100 below.

\[6 \times 100\]

\[75 \times 200\]

\[43 \times 100\]

\[100 \times 8\]

\[8 \times 10 = 80\]

\[250\]

\[92 \times 320\]

\[161 \times 100\]

\[1,000 \times 10\]

\[4 \times 100\]

\[300\]

\[350 \times 1\]

TOTAL NUMBER CORRECT

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>UNIT</th>
<th>SKILL</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>01</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>
A multiple of 100 is the product of two numerals such that one numeral is 100.

Circle the multiples of 100 below.

(100 \times 2)  
33 \times 99

300  
6 \times 100

110 \times 100  
10 \times 3

52 \times 100  
600

100 \times 11  
17 \times 101

850  
1800

100 \times 785  
101 \times 162

420  
8 \times 100
Round off to nearest 100.

145 is between 100 and ____ (what multiple of 100?)

145 is nearer to ____ (100 or 200?)

Write the multiple of 100 nearest to the given numeral.

75 [100] 238 [200]
109 [100] 380 [200]
43 [100] 257 [300]
222 [200] 155 [200]
315 [300] 280 [300]
760 [400] 804 [400]

You round to the nearest 100 when you find the multiple of 100 nearest to a certain whole number.

Remember that if a numeral ends in fifty, you should always round to the greater multiple of one hundred.

Round each of the following to the nearest multiple of 100.

150 [200] 350 [400] 650 [700]
750 [800] 250 [300] 950 [1000]

For more practice do Page 16.
Practice rounding each of the following to the nearest 100.

85 \( \rightarrow 100 \)  \hspace{1cm} 999 \( \rightarrow 1000 \)

157 \( \rightarrow 200 \)  \hspace{1cm} 17,182 \( \rightarrow 17,200 \)

233 \( \rightarrow 200 \)  \hspace{1cm} 49 \( \rightarrow 50 \)

77,717 \( \rightarrow 80,000 \)  \hspace{1cm} 873 \( \rightarrow 800 \)

1,256 \hspace{1cm} \hspace{1cm} 126

1,389 \hspace{1cm} \hspace{1cm} 23

350 \hspace{1cm} \hspace{1cm} 666

9,950 \hspace{1cm} \hspace{1cm} 15,006

<table>
<thead>
<tr>
<th>TOTAL</th>
<th>NUMBER</th>
<th>CORRECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>UNIT</th>
<th>SKILL</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>01</td>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>
Round each of the following numerals, first to the nearest ten and then to the nearest hundred. Sometimes you will round to the nearest hundred or ten to help estimate or approximate an answer.

<table>
<thead>
<tr>
<th>Nearest ten</th>
<th>Nearest hundred</th>
</tr>
</thead>
<tbody>
<tr>
<td>475</td>
<td>480</td>
</tr>
<tr>
<td>1,007</td>
<td></td>
</tr>
<tr>
<td>999</td>
<td></td>
</tr>
<tr>
<td>67</td>
<td></td>
</tr>
<tr>
<td>63,465</td>
<td>63,470</td>
</tr>
<tr>
<td>7,650</td>
<td></td>
</tr>
<tr>
<td>82,631</td>
<td></td>
</tr>
<tr>
<td>6,542</td>
<td></td>
</tr>
<tr>
<td>15,791</td>
<td></td>
</tr>
<tr>
<td>1,257</td>
<td></td>
</tr>
<tr>
<td>99,825</td>
<td></td>
</tr>
<tr>
<td>712</td>
<td></td>
</tr>
</tbody>
</table>
Sometimes when you work a problem you try to find a numeral which is close to the answer. When you do this, you have found an estimate.

Find the estimate of the following problems. First round each numeral to the nearest ten. Then add or subtract. Finally, find the exact answer.

<table>
<thead>
<tr>
<th>Estimate</th>
<th>Exact</th>
</tr>
</thead>
<tbody>
<tr>
<td>72 + 86 = 70 + 90 = 160</td>
<td>158</td>
</tr>
<tr>
<td>147 - 22 = 150 - 20 = 130</td>
<td>130</td>
</tr>
<tr>
<td>395 - 254 = 400 - 300 = 100</td>
<td>121</td>
</tr>
<tr>
<td>38 + 83 = 40 + 80 = 120</td>
<td>121</td>
</tr>
<tr>
<td>629 + 43 = 630 + 40 = 670</td>
<td>677</td>
</tr>
<tr>
<td>97 - 19 = 100 - 20 = 80</td>
<td>78</td>
</tr>
<tr>
<td>763 - 473 = 750 - 500 = 250</td>
<td>293</td>
</tr>
<tr>
<td>925 + 4 = 930 + 0 = 930</td>
<td>930</td>
</tr>
<tr>
<td>99 - 16 = 100 - 20 = 80</td>
<td>83</td>
</tr>
</tbody>
</table>

For extra practice, do Page 17.
See if you can use estimates to solve some word problems.

For each problem, estimate the answer by rounding to the nearest ten.
Then find the exact answer.

Tom sold 76 newspapers on Monday and 53 on Tuesday. How many newspapers did he sell on the two days?

<table>
<thead>
<tr>
<th>Exact</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>129</td>
<td>(80 + 50 = 130)</td>
</tr>
</tbody>
</table>

Harry had 44 cars. Sally had 55. How many cars did they have together?

<table>
<thead>
<tr>
<th>Exact</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>99</td>
<td>(40 + 60) = 100</td>
</tr>
</tbody>
</table>

Joe had 63 bugs in his collection. Frank had 86 in his. How many more bugs did Frank have?

<table>
<thead>
<tr>
<th>Exact</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>(90 - 60) = 30</td>
</tr>
</tbody>
</table>

(Did you remember to subtract?)

Sally had 34 dolls. Sue had 19. How many more dolls did Sally have?

<table>
<thead>
<tr>
<th>Exact</th>
<th>Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>(30 - 20) = 10</td>
</tr>
</tbody>
</table>

For extra practice, in Page 18.
Here are some more word problems. Solve them. First estimate the answer by rounding to the nearest hundred. Then find the exact answer.

Jim had 239 bees in his collection. John had 252 bees in his collection. Together, how many bees did the two boys have?

Estimate
500

Exact
761

There are 24,563 people living in New Kensington. There are 26,833 people living in Greensburg. How many more people are living in Greensburg than in New Kensington? (Do you add or subtract?)

Estimate
2200

Exact
2270

Mr. Smith bought a color television for $657. Mrs. Smith bought a clothes dryer for $328. How much money did Mr. and Mrs. Smith spend on the television and the dryer?

Estimate

Exact

For more practice, go to Page 19.
CET I

Write the correct answer in each blank.

Is 40 nearer to 38 or 45? ____
Is 71 nearer to 70 or 75? ____
Is 7 nearer to 10 or 0? ____
Is 833 nearer to 830 or 840? ____

Circle the best estimated answer.

Sue sold 319 bags of potato chips one day and 208 bags the next day. About how many more bags of potato chips were sold on the first day than on the next day?

500 85 110

Tom sold 127 tickets for the picnic in one day and 178 the next day. About how many tickets did he sell?

50 240 310

Write the numerals for these number words.

Eight hundred sixteen _____

Nineteen thousand sixty-three _____
Answer the following questions.

13 is nearer to \( \underline{10} \) (10 or 20?)

36 is nearer to \( \underline{40} \) (30 or 40?)

28 is nearer to \( \underline{30} \) (20 or 30?)

16 is nearer to \( \underline{20} \) (10 or 20?)

43 is nearer to \( \underline{40} \) (40 or 50?)

2 is nearer to \( \underline{0} \) (0 or 10?)

22 is nearer to \( \underline{20} \) (20 or 30?)

17 is nearer to \( \underline{20} \) (10 or 20?)

8 is nearer to \( \underline{10} \) (0 or 10?)

39 is nearer to \( \underline{40} \) (30 or 40?)

23 is nearer to \( \underline{20} \) (20 or 30?)

4 is nearer to \( \underline{0} \) (0 or 10?)
Answer the following questions. Use the number line for help.

64 is about \( \bigcirc \) (60 or 70?)

38 is about \( \bigcirc \) (30 or 40?)

74 is about \( \bigcirc \) (70 or 80?)

59 is about \( \bigcirc \) (50 or 60?)

97 is about \( \bigcirc \) (90 or 100?)

65 is about \( \bigcirc \) (60 or 70?)

82 is about \( \bigcirc \) (80 or 90?)

Write the multiple of ten nearest to the following numerals.

87
73
95
66
82

TOTAL NUMBER POINTS CORRECT
12

LEVEL UNIT SKILL PAGE
E 01 3 15

238
Round each of the following numerals to the nearest ten.

29  \[\underline{30}\]
144 \[\underline{140}\]
31 \[\underline{30}\]
7,885 \[\underline{7,900}\]
333 \[\underline{330}\]
25,756 \[\underline{25,800}\]
1,285 \[\underline{1,300}\]

Round each of the following numerals to the nearest hundred.

750 \[\underline{800}\]
895 \[\underline{900}\]
1,026 \[\underline{1,000}\]
57,962 \[\underline{58,000}\]
19 \[\underline{0}\]
68 \[\underline{100}\]
82,550 \[\underline{83,000}\]
Round each addend to the nearest multiple of ten. Estimate the sum by adding the multiples of ten. Then find the exact sum.

<table>
<thead>
<tr>
<th>Estimate</th>
<th>Exact</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 + 19</td>
<td>30</td>
</tr>
<tr>
<td>62 + 31</td>
<td>90</td>
</tr>
<tr>
<td>57 + 42</td>
<td>100</td>
</tr>
<tr>
<td>77 + 52</td>
<td>136</td>
</tr>
<tr>
<td>35 + 24</td>
<td>60</td>
</tr>
<tr>
<td>45 + 15</td>
<td>70</td>
</tr>
</tbody>
</table>

You can mark the numerals on the number line below if you need help finding the nearest multiple of ten.
Solve the following word problems. First estimate the answer by rounding to the nearest ten. Then find the exact answer.

Jane collected 55 seashells and Jill collected 101. How many seashells did they collect together?

Estimate  
\[ 55 + 101 = 156 \]  
Exact  
\[ 156 \]

A gray truck carried 377 pounds of dirt. A red truck carried 263 pounds. How many pounds did they carry together?

Estimate  
\[ 377 + 263 = 640 \]  
Exact  
\[ 640 \]

Ann saw 85 clowns. Nancy saw 52. How many more clowns did Ann see?

Estimate  
\[ 85 - 52 = 33 \]  
Exact  
\[ 33 \]

Mary made 93 cookies. Alice made 112. How many more cookies did Alice make?

Estimate  
\[ 93 - 112 = -19 \]  
Exact  
\[ -19 \]
Solve the following word problems. First estimate the answer by rounding to the nearest hundred. Then find the exact answer.

On Monday 19,767 people attended the baseball game. On Tuesday 21,329 people attended. How many people attended on the two days?

Estimate
41,000

Exact
41,096

Mr. Jones used 972 stones to build his wall. Mr. Smith used 644 to build his. How many more stones did Mr. Jones use?

Estimate
400

Exact
328

Farmer Brown had 550 head of cattle. Farmer Johnson had 1,395 head of cattle. How many more head of cattle did Farmer Johnson have?

Estimate
800

Exact
945
CET II

Round each number to the nearest ten.

32 ____ 68 ____

Round each number to the nearest hundred.

793 ____ 441 ____

Circle the best estimated answer.

Terry has 432 stamps in his stamp collection. He will buy 158 more. How many will he have then?

300  500  600

Mr. Benson sold 529 hot dogs on Tuesday at the game. On Wednesday he sold 750. How many more did he sell on Wednesday?

500  220  110

Write the numerals for these number words.

Seven hundred twenty-six ____

One thousand nine hundred sixty-eight ____
LEVEL E, NUMERATION, SKILL 3

OBJECTIVE: Rounds numbers to tens and hundreds for comparison and for estimating answers in simple word problems.

STANDARD TEACHING SEQUENCE

<table>
<thead>
<tr>
<th>Page</th>
<th>Standard Teaching Sequence</th>
<th>Supplementary Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>Rounds numerals to nearest ten. Numerals under 100, including numerals ending in 5.</td>
<td>14</td>
</tr>
<tr>
<td>4.</td>
<td>Rounds numerals to nearest ten. Numerals under 20,000, some ending in 5.</td>
<td>15</td>
</tr>
<tr>
<td>5.</td>
<td>Selects multiples of 100, working from examples.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Rounds numerals to nearest 100. Numerals to 1,000, some ending in 50.</td>
<td>16</td>
</tr>
<tr>
<td>8.</td>
<td>Rounds numerals to nearest 100. Numerals under 20,000, some ending in 50.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Rounds numerals to nearest ten and then to nearest 100 under 100,000.</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Rounds numerals to nearest ten to estimate result of addition or subtraction then finds exact answer.</td>
<td>17</td>
</tr>
<tr>
<td>11.</td>
<td>Estimates answers to word problems by rounding numbers to nearest ten before adding or subtracting. Then finds exact answer.</td>
<td>18</td>
</tr>
<tr>
<td>12.</td>
<td>Estimates answers to word problems by rounding numbers to nearest 100 before adding or subtracting. Then finds exact answer.</td>
<td>19</td>
</tr>
<tr>
<td>13.</td>
<td>CET I.</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>CET II.</td>
<td></td>
</tr>
</tbody>
</table>

Circle pages that are to be done.
Standard Teaching Sequence, Con't.

1967-68

Sequence No.   Prescription No.
21R            Rounds a list of given numbers to the nearest multiple of ten. Uses a number line to 30 to help find answers.
22k            Estimates answers to problems by first rounding given numbers to the nearest multiple of ten, then adding the rounded numbers to find the total. Story situation presented.

Textbook Resources:

<table>
<thead>
<tr>
<th>Book</th>
<th>Teaching Pages</th>
<th>Practice Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harcourt, Brace &amp; World, 1966</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary Mathematics - 3</td>
<td>152</td>
<td>126</td>
</tr>
<tr>
<td>Harcourt, Brace &amp; World, 1966</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary Mathematics - 4</td>
<td>36</td>
<td>254</td>
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<tr>
<td>Harcourt, Brace &amp; World, 1966</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary Mathematics - 5</td>
<td></td>
<td>14, 15 (prob 1-6)</td>
</tr>
</tbody>
</table>
TO THE STUDENT

Write the numerals for these number words.

Fourteen

Seven thousand one hundred twenty-eight

Write the number words for these numerals.

807

9,047

4,500

68

Answers

14

7,128
eight hundred seven

nine thousand forty-seven

four thousand five hundred sixty-eight
Write the missing numerals or number words.

0 zero 17 seventeen
1 one 18 eighteen
2 two 19 nineteen
3 three 20 twenty
4 four 21 twenty-one
5 five 22 twenty-two
6 six 23 twenty-three
7 seven 24 twenty-four
8 eight 25 twenty-five
9 nine 26 twenty-six
10 ten 27 twenty-seven
11 eleven 28 twenty-eight
12 twelve 29 twenty-nine
13 thirteen 30 thirty
14 fourteen 31 thirty-one
15 fifteen 32 thirty-
16 sixteen 33 thirty-three
Write the missing numerals or number words.

| 38 | thirty-eight | 57 | ________ |
| 39 | ________ | 58 | fifty-______ |
| 40 | forty | 59 | ________ |
| 41 | ________-one | 60 | sixty |
| 42 | ________ | 61 | ______-one |
| 43 | forty-three | 62 | sixty-______ |
| 44 | ________ | 63 | ________ |
| 45 | forty-five | 64 | sixty-four |
| 46 | ________ | 65 | ______ five |
| 47 | ________ | 66 | ________ |
| 48 | ______-eight | 67 | ________ |
| 49 | ________ | 68 | ______-six |
| 50 | fifty | 69 | ________ |
| 51 | ______-one | 70 | ________ |
| 52 | fifty-______ | 71 | seventy-one |
| 53 | ________ | 72 | ______-two |
| 54 | fifty-four | 73 | seventy-three |
| 55 | ________ | 74 | ________ |

<table>
<thead>
<tr>
<th>TOTAL POINTS</th>
<th>NUMBER CORRECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>UNIT</th>
<th>SKILL</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>01</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

249
Write in the missing numerals and number words.

<table>
<thead>
<tr>
<th></th>
<th>seventy-five</th>
<th>89</th>
<th></th>
<th>ninety-nine</th>
</tr>
</thead>
<tbody>
<tr>
<td>76</td>
<td>____________</td>
<td>__</td>
<td></td>
<td></td>
</tr>
<tr>
<td>77</td>
<td>____________</td>
<td>91</td>
<td>__</td>
<td></td>
</tr>
<tr>
<td></td>
<td>seventy-eight</td>
<td>92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>79</td>
<td>____________</td>
<td>93</td>
<td>__</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>eighty</td>
<td>__</td>
<td></td>
<td></td>
</tr>
<tr>
<td>81</td>
<td>____________</td>
<td>95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>82</td>
<td>____________</td>
<td>96</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>eighty-three</td>
<td>97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>84</td>
<td>____________</td>
<td>__</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>____________</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>____________</td>
<td>__</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>____________</td>
<td>101</td>
<td>one</td>
<td>one</td>
</tr>
</tbody>
</table>

What comes after eighty six? _______________________

What comes before ninety-one? _______________________

What comes after ninety-nine? _______________________
Write the numeral for each number word.

thirteen 13
ninety-one ___

thirty-three ___
ninety-two ___

thirty-one 31
ninety-three ___

thirty 30
thirty-nine ___

Write the number words for these numerals.

6 SIX

60 sixty

66 sixty-six

33 thirty-three

34 thirty-four

35 thirty-five

53 fifty-three

15 fifteen
Write in the missing numerals and number words.

100 \[\text{one hundred}\] (1 pt.)
101 \[\text{one hundred one}\] (1 pt.)
102 \[\text{one hundred two}\] (1 pt.)
103 \[\text{one hundred three}\] (1 pt.)
104 \[\text{one hundred four}\] (1 pt.)
105 \[\text{one hundred five}\] (1 pt.)
106 \[\text{one hundred six}\] (1 pt.)
107 \[\text{one hundred seven}\] (1 pt.)
108 \[\text{one hundred eight}\] (1 pt.)
109 \[\text{one hundred nine}\] (1 pt.)
110 \[\text{one hundred ten}\] (1 pt.)
111 \[\text{one hundred eleven}\] (1 pt.)
112 \[\text{one hundred twelve}\] (1 pt.)
113 \[\text{one hundred thirteen}\] (1 pt.)
114 \[\text{one hundred fourteen}\] (1 pt.)
115 \[\text{one hundred fifteen}\] (1 pt.)
116 \[\text{one hundred sixteen}\] (1 pt.)
117 \[\text{one hundred seventeen}\] (1 pt.)
Write the missing numerals and number words.

<table>
<thead>
<tr>
<th>150</th>
<th>one ____________ fifty</th>
</tr>
</thead>
<tbody>
<tr>
<td>151</td>
<td>_______________</td>
</tr>
<tr>
<td></td>
<td>one hundred fifty-two</td>
</tr>
<tr>
<td>153</td>
<td>_______________</td>
</tr>
<tr>
<td>154</td>
<td>_______________</td>
</tr>
<tr>
<td>155</td>
<td>_______________</td>
</tr>
<tr>
<td>156</td>
<td>one hundred fifty-six</td>
</tr>
<tr>
<td>157</td>
<td>_______________</td>
</tr>
<tr>
<td>158</td>
<td>_______________</td>
</tr>
<tr>
<td>159</td>
<td>_______________</td>
</tr>
<tr>
<td>160</td>
<td>one hundred ________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>250</th>
<th>two hundred fifty</th>
</tr>
</thead>
<tbody>
<tr>
<td>251</td>
<td>two _______________</td>
</tr>
<tr>
<td>252</td>
<td>_______________</td>
</tr>
<tr>
<td>253</td>
<td>two hundred fifty-three</td>
</tr>
<tr>
<td>254</td>
<td>_______________</td>
</tr>
<tr>
<td>255</td>
<td>two hundred fifty-five</td>
</tr>
</tbody>
</table>

### Points Table

<table>
<thead>
<tr>
<th>TOTAL POINTS</th>
<th>NUMBER CORRECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td></td>
</tr>
</tbody>
</table>

### Level, Unit, Skill, Page

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>UNIT</th>
<th>SKILL</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>01</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

253
Write the missing numerals or number words.

<table>
<thead>
<tr>
<th>Number</th>
<th>Numerals</th>
<th>Number Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>296</td>
<td>two hundred ninety-five</td>
<td></td>
</tr>
<tr>
<td>297</td>
<td>two hundred ninety-seven</td>
<td></td>
</tr>
<tr>
<td>298</td>
<td>two hundred ninety-eight</td>
<td></td>
</tr>
<tr>
<td>299</td>
<td>two hundred ninety-nine</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>three hundred</td>
<td></td>
</tr>
<tr>
<td>301</td>
<td>three hundred one</td>
<td></td>
</tr>
<tr>
<td>302</td>
<td>three hundred two</td>
<td></td>
</tr>
<tr>
<td>303</td>
<td>three hundred three</td>
<td></td>
</tr>
<tr>
<td>304</td>
<td>three hundred four</td>
<td></td>
</tr>
<tr>
<td>403</td>
<td>four hundred</td>
<td></td>
</tr>
<tr>
<td>503</td>
<td>five hundred</td>
<td></td>
</tr>
<tr>
<td>603</td>
<td>six hundred</td>
<td></td>
</tr>
<tr>
<td>700</td>
<td>seven</td>
<td></td>
</tr>
<tr>
<td>900</td>
<td>nine hundred</td>
<td></td>
</tr>
<tr>
<td>1,000</td>
<td>one thousand</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOTAL POINTS</th>
<th>NUMBER CORRECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>UNIT</th>
<th>SKILL</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>01</td>
<td>4</td>
<td>7</td>
</tr>
</tbody>
</table>
Write the number words for these numerals.

100 one hundred (1 pt.)
101 one hundred one (1 pt.)
102 one hundred two (1 pt.)
120 one hundred twenty (1 pt.)
121 one hundred twenty-one (1 pt.)
131 one hundred thirty-one (1 pt.)
231 two hundred thirty-one (1 pt.)

Write the numerals for these number words.

768 seven hundred sixty-eight
409 four hundred nine
235 two hundred thirty-five
935 nine hundred thirty-five
918 nine hundred eighteen
981 nine hundred eighty-one
801 eight hundred one

For extra practice, do Page 18.
Write the missing numerals and number words.

<table>
<thead>
<tr>
<th>Numeric</th>
<th>Word Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>997</td>
<td>nine hundred ninety eight</td>
</tr>
<tr>
<td>999</td>
<td>one thousand three</td>
</tr>
<tr>
<td>1,000</td>
<td>one thousand</td>
</tr>
<tr>
<td>1,001</td>
<td>one thousand three</td>
</tr>
<tr>
<td>1,002</td>
<td>one thousand three</td>
</tr>
<tr>
<td>1,004</td>
<td>one thousand three</td>
</tr>
<tr>
<td>1,015</td>
<td>one thousand sixteen</td>
</tr>
<tr>
<td>1,016</td>
<td>one thousand sixteen</td>
</tr>
<tr>
<td>1,017</td>
<td>one thousand eighteen</td>
</tr>
<tr>
<td>1,019</td>
<td>one thousand nineteen</td>
</tr>
<tr>
<td>1,020</td>
<td>one thousand three</td>
</tr>
<tr>
<td>1,021</td>
<td>one thousand three</td>
</tr>
</tbody>
</table>
Write the missing numerals and number words.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1,097</td>
<td>one thousand ninety-seven</td>
<td>(1 pt.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,098</td>
<td>one thousand ninety-eight</td>
<td>(1 pt.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,099</td>
<td>one thousand ninety-nine</td>
<td>(1 pt.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,100</td>
<td>one thousand one hundred</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,101</td>
<td>one thousand one hundred one</td>
<td>(1 pt.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,102</td>
<td>one thousand one hundred two</td>
<td>(1 pt.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,103</td>
<td>one thousand one hundred three</td>
<td>(1 pt.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,104</td>
<td>one thousand one hundred four</td>
<td>(1 pt.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,105</td>
<td>one thousand one hundred five</td>
<td>(1 pt.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,125</td>
<td>one thousand one hundred twenty-five</td>
<td>(1 pt.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,126</td>
<td>one thousand one hundred twenty-six</td>
<td>(1 pt.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,127</td>
<td>one thousand one hundred twenty-seven</td>
<td>(1 pt.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,128</td>
<td>one thousand one hundred twenty-eight</td>
<td>(1 pt.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,129</td>
<td>one thousand one hundred twenty-nine</td>
<td>(1 pt.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,130</td>
<td>one thousand one hundred thirty</td>
<td>(1 pt.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,140</td>
<td>one thousand one hundred forty</td>
<td>(1 pt.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For extra practice, do Page 19
Write the numeral for each of the number words.

seventy  70
seventy-eight  78
seven hundred eight  708
seven hundred eighty  780
seven thousand eight  7,008
seven thousand eighty  7,080
nineteen  19
ninety-one  91
twenty-nine  29
ninety-two  92
two hundred nine  209
nine hundred two  902
Write the number words for each numeral.

14  fourteen  (1 pt.)
41  forty-one  (1 pt.)
241  two hundred and forty-one  (1 pt.)
1,241  one thousand two hundred and forty-one  (1 pt.)
89  eighty-nine  (1 pt.)
890  eight hundred and ninety  (1 pt.)
8,900  eight thousand nine hundred  (1 pt.)
8,989  eight thousand nine hundred and eighty-nine  (1 pt.)
5,000  five thousand  (1 pt.)
500  five hundred  (1 pt.)
50  fifty  (1 pt.)
5  five  (1 pt.)
5,555  five thousand five hundred and fifty-five  (1 pt.)
Some numerals are read in a special way.

<table>
<thead>
<tr>
<th>YEARS</th>
<th>1958</th>
<th>1800</th>
<th>1806</th>
</tr>
</thead>
</table>

When the YEAR is written in numerals, like 1958 above, you read it "nineteen fifty-eight."

Leave out the word hundred, and divide the numeral into two parts

<table>
<thead>
<tr>
<th>19 58</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;nineteen; fifty-eight&quot;</td>
</tr>
</tbody>
</table>

But:

<table>
<thead>
<tr>
<th>18 00</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;eighteen; hundred&quot;</td>
</tr>
</tbody>
</table>

and

<table>
<thead>
<tr>
<th>18 06</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;eighteen; oh-six&quot;</td>
</tr>
</tbody>
</table>

Write the words you would use to say the following years.

1620  sixteen twenty

1066  ten sixty-six

1200  twelve hundred

1492  fourteen ninety-two

1902  nineteen oh-two

Notice that there is no comma when a year is written in numerals. 1902 is a year. 1,902 is not a year.
This is a list of number words for reading years.

Write each year in numerals.

Remember, the comma is not used in writing a year in numerals.

twelve twenty 1220  eighteen seventy 1870

nineteen sixty 1960  nineteen hundred 1900

nineteen ninety 1990  nineteen oh four 1904

two thousand 2000  ten ten 1010

Write the correct number words.

1,942 (the numeral) is read as
one thousand nine hundred forty-two (1 pt.)

1942 (the year-no comma) is read as
nineteen forty-two (1 pt.)

1700 is read as
seventeen hundred (1 pt.)

1,700 is read as
one thousand seven hundred (1 pt.)
Telephone numbers are read in a special way.

Read each numeral separately. Say a series of single-place numerals.

882-6170 is read as

"eight eight two six one seven oh"

Write the words you would use to say these telephone numbers.

521-3523 five two one three five two three

471-2944 six seven one two nine four four

828-0358 eight two eight oh three five eight

661-4287 six one four two eight seven

<table>
<thead>
<tr>
<th>TOTAL POINTS</th>
<th>NUMBER CORRECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>UNIT</th>
<th>SKILL</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>01</td>
<td>4</td>
<td>15</td>
</tr>
</tbody>
</table>
When you see a money symbol, such as $2.13, you know that the numerals to the left of the decimal point stand for dollars, and the numerals to the right of the decimal point stand for cents.

Read $2.38 as "two dollars and thirteen cents."

Read $.25 as "twenty-five cents."

Read $3.00 as "three dollars."

Write the words you would use to say these amounts of money.

$ 18.00  eighteen dollars  (1 pt)

$ 7.20  seven dollars and twenty cents  (1 pt)

$ 3.72  three dollars and seventy-two cents  (1 pt)

$ .56  fifty-six cents  (1 pt)

$ 1.08  one dollar and eight cents  (1 pt)

$121.35  one hundred twenty-one dollars and thirty-five cents  (1 pt)

For extra practice, do Page 20.
CET I

Write the numerals for these number words.

two thousand four hundred nineteen ____________

three hundred fifty-two ____________

eight thousand six ____________

Write the number words for these numerals.

783 ____________________________

8,052 ____________________________

Write a decimal numeral for each fraction.

\[
\frac{8}{10} \quad \frac{37}{100} \\
\frac{4}{5} \quad \frac{93}{100} \\
\frac{123}{6} \quad \frac{212}{100}
\]
Fill in the blanks to complete the number words for these numerals.

120  one _______ twenty

121  one hundred _______

122  _______ twenty-two

123  _______ twenty-three

225  ______ hundred twenty-three

323  ______ hundred twenty-three

Write the numerals for these number words.

five hundred ______

four hundred ______

four hundred fifty-one ______

four hundred fifty-two ______

four hundred fifty-three ______

four hundred fifty-four ______
Write the missing numerals and number words.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1,140</td>
<td>one thousand one hundred forty</td>
<td></td>
</tr>
<tr>
<td>1,150</td>
<td>one thousand one hundred fifty</td>
<td>( , )</td>
</tr>
<tr>
<td>1,160</td>
<td>one thousand one hundred sixty</td>
<td></td>
</tr>
<tr>
<td>1,260</td>
<td>one thousand two hundred sixty</td>
<td></td>
</tr>
<tr>
<td>1,360</td>
<td>one thousand three hundred sixty</td>
<td>( , )</td>
</tr>
<tr>
<td>1,460</td>
<td>one thousand four hundred sixty</td>
<td></td>
</tr>
<tr>
<td>1,560</td>
<td>one thousand five hundred sixty</td>
<td></td>
</tr>
<tr>
<td>1,660</td>
<td>one thousand six hundred sixty</td>
<td></td>
</tr>
<tr>
<td>1,760</td>
<td>one thousand seven hundred sixty</td>
<td></td>
</tr>
<tr>
<td>1,860</td>
<td>one thousand eight hundred sixty</td>
<td></td>
</tr>
<tr>
<td>1,960</td>
<td>one thousand nine hundred sixty</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL POINTS: 17  NUMBER CORRECT: 17
This is the way to read and write money symbols in number words.

$12.34

The numerals on this side of the decimal point stand for dollars.

Say,

"twelve dollars and thirty-four cents."

Rewrite these money symbols in number words.

$2.16

_ two _ dollars and _ sixteen _ cents

$5.02

_ five _ dollars and _ two _ cents

$21.35

_ twenty-one _ dollars and _ thirty-five _ cents
CET II

Write the number words for these numerals.

7,365

9,006

Write the numerals for these number words.

Seven thousand four

Nine thousand six hundred one

Four hundred twenty-seven

Write a decimal numeral for each fraction.

\[
\frac{9}{10} \quad \frac{37}{100} \quad \frac{41}{100}
\]

\[
\frac{37}{10} \quad \frac{23}{100} \quad \frac{9}{100}
\]

\[
\frac{126}{100} \quad \frac{131}{10} \quad \frac{3}{10}
\]
OBJECTIVE: Gives the standard numeral for a 2-, 3-, or 4-place number written in words and writes a 2-, 3-, or 4-place number in words.

STANDARD TEACHING SEQUENCE

<table>
<thead>
<tr>
<th>Page</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Writes numeral or number words to complete chart; numbers from zero to 33.</td>
</tr>
<tr>
<td>2.</td>
<td>Writes numerals or number words to complete chart; numbers from 38 to 74.</td>
</tr>
<tr>
<td>3.</td>
<td>Writes numerals or number words to complete chart; numbers from 75 to 102.</td>
</tr>
<tr>
<td>4.</td>
<td>Writes numeral for number words or number words for numerals, as requested, for numbers under 100.</td>
</tr>
<tr>
<td>5.</td>
<td>Writes number words or numerals to complete chart; numbers from 100 to 117.</td>
</tr>
<tr>
<td>6.</td>
<td>Writes numerals or number words to complete chart; numbers from 150 to 160 and from 250 to 255.</td>
</tr>
<tr>
<td>7.</td>
<td>Writes numerals or number words to complete number chart; for numbers from 295 to 304 and for non-sequential set of numbers up to 1000.</td>
</tr>
<tr>
<td>8.</td>
<td>Writes numerals for number words and number words for numerals as requested, for numbers under 1000.</td>
</tr>
<tr>
<td>9.</td>
<td>Writes numerals or number words to complete chart; numbers from 997 to 1,004 and from 1,015 to 1,021.</td>
</tr>
<tr>
<td>10.</td>
<td>Writes numerals and number words to complete chart; numbers from 1,097 to 1,105 and from 1,125 to 1,140.</td>
</tr>
<tr>
<td>11.</td>
<td>Writes numerals for number words, as requested, for 2-, 3-, and 4-place numbers.</td>
</tr>
<tr>
<td>12.</td>
<td>Writes number words for numerals, as requested, for 2-, 3-, and 4-place numbers.</td>
</tr>
<tr>
<td>13.</td>
<td>Writes words used to read a date, given the year in numerals.</td>
</tr>
<tr>
<td>14.</td>
<td>Writes numerals for years given in words; distinguishes numerals which symbolize numbers from numerals which symbolize years (no comma), and writes appropriate number words.</td>
</tr>
<tr>
<td>15.</td>
<td>Writes telephone number in number words.</td>
</tr>
<tr>
<td>16.</td>
<td>Writes money symbols in number words and &quot;dollars&quot; and &quot;cents.&quot;</td>
</tr>
<tr>
<td>17.</td>
<td>CET I.</td>
</tr>
<tr>
<td></td>
<td>CET II.</td>
</tr>
</tbody>
</table>

Circle pages that are to be done.
<table>
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<th>Practice Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harcourt, Brace &amp; World, 1966</td>
<td></td>
<td>73</td>
</tr>
<tr>
<td>Elementary Mathematics - 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Based upon materials developed by The Mathematics Curriculum Staff, Learning Research and Development Center, University of Pittsburgh; Joseph L. Lipsen, Ph.D., Director; Edith Kehet; Barbara Thomas.

Written by the staff of Appleton-Century-Crofts under the direction of Jerome B. Kaplan, Ed.D., Teachers College, Columbia University

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DEVELOPMENTAL EDITION
TO THE STUDENT

Can you change these common fractions into decimal numbers?

\[
\frac{3}{10} \quad \text{—} \\
\frac{4}{100} \quad \text{—}
\]

You will learn how in this booklet.

Answers

\[
.3 \\
4.72
\]
Do you remember how to write common fractions for tenths and hundredths as decimal numbers?

Here are a few examples.

<table>
<thead>
<tr>
<th>Common fraction</th>
<th>Decimal number</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{1}{10} )</td>
<td>( .1 )</td>
</tr>
<tr>
<td>( \frac{3}{10} )</td>
<td>( .3 )</td>
</tr>
<tr>
<td>( \frac{9}{10} )</td>
<td>( 5.9 )</td>
</tr>
</tbody>
</table>

How many places to the right of the decimal point is the tenths' place? \( \_ \_ \) place

<table>
<thead>
<tr>
<th>Common fraction</th>
<th>Decimal number</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{6}{100} )</td>
<td>( .06 )</td>
</tr>
<tr>
<td>( \frac{28}{100} )</td>
<td>( .28 )</td>
</tr>
<tr>
<td>( \frac{55}{100} )</td>
<td>( 4.55 )</td>
</tr>
</tbody>
</table>

How many places to the right of the decimal point is the hundredths' place? \( \_ \_ \) places
When you write a decimal number, the decimal point should remind you that you are writing a fraction, not a whole number.

Write these fractions as decimal numbers.

\[
\frac{5}{10} = .5 \quad \quad \quad \quad \frac{25}{100} = .25
\]

\[
\frac{4}{100} = .04 \quad \quad \quad \quad \frac{17}{100} = .17
\]

\[
\frac{67}{100} = .67 \quad \quad \quad \quad \frac{2}{10} = .2
\]

Write these decimal numbers as common fractions.

\[
.4 = \frac{4}{10} \quad \quad \quad .35 = \frac{35}{100}
\]

\[
.07 = \frac{7}{100} \quad \quad \quad .96 = \frac{96}{100}
\]

\[
.03 = \frac{3}{100} \quad \quad \quad .8 = \frac{8}{10}
\]
Look at the following figures. How much of circle A is shaded? \( \frac{10}{10} \) or 1 whole

How much of circle B is shaded? \( \frac{2}{10} \)

For circles A and B together, it is correct to say that one and two tenths of the circles are shaded. You can write a number for one and two tenths by writing the whole number part and then the fraction part.

one and two tenths = \( 1 \frac{2}{10} \)

A number with a whole number part and a fraction part is called a mixed fraction.

Write the mixed fraction for these number words.

one and four tenths = \( 1 \frac{4}{10} \)
three and six hundredths = \( 3 \frac{6}{100} \)
six and twenty-five hundredths = \( 6 \frac{25}{100} \)
eight and one tenth = \( 8 \frac{1}{10} \)

For extra practice, do Page 10.
Suppose you have twenty-five whole circles and five tenths of another circle.

You have a total of twenty-five and five tenths circles. Mixed fractions for larger numbers are written the same way as for smaller numbers. First write the whole number part, then write the fraction part after it.

\[
\text{twenty-five and five tenths} = \frac{25}{10} + \frac{5}{10} = \frac{30}{10} = 3
\]

To write the decimal for any number, first write the whole number part, then a decimal point, then the number of tenths or hundredths in the fraction part.

\[
\text{twenty-five and five tenths} = 25 \frac{5}{10} = 25.5
\]

Fill the blank spaces below.

<table>
<thead>
<tr>
<th>Mixed fraction</th>
<th>Decimal number</th>
</tr>
</thead>
<tbody>
<tr>
<td>sixty-seven and five hundredths</td>
<td>( \frac{67}{100} )</td>
</tr>
<tr>
<td>fifty and forty-two hundredths</td>
<td>( \frac{50}{100} + \frac{42}{100} = \frac{92}{100} )</td>
</tr>
<tr>
<td></td>
<td>( \frac{15}{2} )</td>
</tr>
<tr>
<td>twenty-three and seventeen hundredths</td>
<td></td>
</tr>
</tbody>
</table>

For extra practice do Page 11.
You can write mixed fractions as decimal numbers. To write a mixed fraction as a decimal number, write the whole number part, a decimal point, and then the number of tenths or hundredths in the fraction part.

\[ 3 \frac{5}{10} = \text{three and five tenths} = 3.5 \]

Write these mixed fractions as decimal numbers.

\[
\begin{align*}
6 \frac{2}{10} &= 6.2 \\
4 \frac{7}{100} &= 4.07 \\
32 \frac{5}{10} &= 32.5 \\
63 \frac{26}{100} &= 63.26 \\
41 \frac{8}{10} &= 41.8 \\
106 \frac{33}{100} &= 106.33 \\
92 \frac{46}{100} &= 92.46 \\
4 \frac{3}{100} &= 4.03
\end{align*}
\]

Write these decimal numbers as mixed fractions.

\[
\begin{align*}
6.4 &= 6 \frac{4}{10} \\
8.23 &= 8 \frac{23}{100} \\
9.06 &= 9 \frac{6}{100} \\
22.31 &= 22 \frac{31}{100} \\
19.5 &= 19 \frac{5}{10} \\
11.36 &= 11 \frac{36}{100} \\
43.07 &= 43 \frac{7}{100} \\
36.92 &= 36 \frac{92}{100}
\end{align*}
\]

For extra practice do Page 12.
Draw a circle around the mixed fraction that means the same as the decimal number.

<table>
<thead>
<tr>
<th>Mixed Fraction</th>
<th>Decimal</th>
<th>Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>56.3</td>
<td>$\frac{56}{10}$</td>
<td>$\frac{56}{100}$</td>
</tr>
<tr>
<td>.67</td>
<td>$\frac{67}{10}$</td>
<td>$\frac{67}{100}$</td>
</tr>
<tr>
<td>18.54</td>
<td>$\frac{185}{10}$</td>
<td>$\frac{185}{100}$</td>
</tr>
<tr>
<td>37.08</td>
<td>$\frac{37}{10}$</td>
<td>$\frac{37}{100}$</td>
</tr>
<tr>
<td>72.63</td>
<td>$\frac{72}{10}$</td>
<td>$\frac{72}{100}$</td>
</tr>
</tbody>
</table>

Draw a circle around the decimal number that means the same as the mixed fraction.

<table>
<thead>
<tr>
<th>Mixed Fraction</th>
<th>Decimal</th>
<th>Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 3/100</td>
<td>4.03</td>
<td>4.3</td>
</tr>
<tr>
<td>73 7/10</td>
<td>73.07</td>
<td>73.7</td>
</tr>
<tr>
<td>62 23/100</td>
<td>62.23</td>
<td>622.3</td>
</tr>
</tbody>
</table>

**TOTAL POINTS** | **NUMBER CORRECT**
--- | ---
8 | 8

**LEVEL** | **UNIT** | **SKILL** | **PAGE**
--- | --- | --- | ---
E | 01 | 5 | 6
Write as mixed fractions.

126.7 = \( \frac{1267}{10} \)

31.81 = 

58.31 = 

672.69 = 

147.03 = 

52.06 = 

11.43 = 

225.25 = 

Write as decimal numbers.

57 \frac{3}{10} = 

149 \frac{27}{100} = 

500 \frac{6}{100} = 

18 \frac{18}{100} = 

82 \frac{70}{100} = 

365 \frac{21}{100} = 

721 \frac{6}{10} = 

8 \frac{35}{100} = 

For extra practice do Page 13.
Match the mixed fractions and decimal numbers by writing a letter in each blank.

a) \( \frac{81}{100} \)
b) \( \frac{1}{10} \)
c) \( \frac{66}{100} \)
d) \( \frac{3}{10} \)

a) 9.09
b) 99.9

c) 9.99

d) 9.9

a) \( \frac{5}{100} \)
b) \( \frac{5}{10} \)
c) \( \frac{2}{10} \)
d) \( \frac{25}{100} \)
CET I

Write the mixed or common fraction for each decimal number.

1.37 _______ .03 _______

624.03 _______ 6.1 _______

82.9 _______ 27.45 _______

Write the decimal number for each fraction.

\( \frac{42}{10} \) _______ \( \frac{1}{10} \) _______

\( \frac{901}{100} \) _______ \( \frac{5}{100} \) _______

\( \frac{24}{100} \) _______ \( \frac{7}{10} \) _______

Write the decimal for these number words.

three hundred and sixty-seven thousandths _______

two and eight thousandths _______

forty-three and seventy-eight thousandths _______

\[ \text{TL. Pts.} \quad \text{CIRCLE} \quad \text{CORRECT BOX} \]

\[ \begin{array}{c|c|c|c}
\text{LEVEL} & \text{UNIT} & \text{SKILL} & \text{PAGE} \\
\hline
E & 01 & 5 & 9 \\
\end{array} \]
A number which has a whole number part and a fraction part is called a **mixed fraction**.

This is an example.

one and two tenths = \( 1 \frac{2}{10} \)

Draw a circle around each of these numbers which is a **mixed fraction**.

\[
\begin{array}{cccc}
7 \frac{9}{100} & 3 \frac{1}{10} & 8 \frac{4}{10} & 4 \\
\end{array}
\]

How many whole circles are there? ____

What fraction of a circle is there? \( \frac{2}{10} \)

Together there are **two and three tenths** circles.

Write two and three tenths as a mixed fraction. \(2 \frac{3}{10}\)

How many whole circles are there? ____

What fraction of a circle is there? \( \frac{7}{10} \)

Together there are ________ circles.

Write one and seven tenths as a mixed fraction. ____________
When you write a mixed fraction for number words, write the whole number part first and then the fraction part.

How many whole circles are there? \( \frac{3}{5} \)

What fraction of a circle is there? ________________

Write a mixed fraction telling how many circles there are. ________________

Write the mixed fractions for the following number words.

one and seven tenths = \( \frac{7}{10} \)

four and twenty-one hundredths = \( \frac{421}{100} \)

nine and nine tenths = \( \frac{99}{10} \)

three and five tenths = \( \frac{35}{10} \)

six and seven hundredths = \( \frac{67}{100} \)
Write these mixed fractions as decimal numbers. Remember that the decimal point separates the whole number part from the fraction part.

\[
\begin{align*}
6 \frac{7}{10} &= 6.7 \\
1 \frac{14}{100} &= 1.14 \\
2 \frac{7}{100} &= 2.07 \\
14 \frac{9}{10} &= 14.9 \\
31 \frac{25}{100} &= 31.25 \\
67 \frac{5}{10} &= 67.5 \\
19 \frac{72}{100} &= 19.72 \\
43 \frac{4}{100} &= 43.04
\end{align*}
\]

Write these decimal numbers as mixed fractions. Remember that the digits after the decimal point show the fractional part of the number.

\[
\begin{align*}
3.8 &= 3 \frac{8}{10} \\
6.91 &= 6 \frac{91}{100} \\
7.02 &= 7 \frac{2}{100} \\
94.08 &= 94 \frac{8}{100} \\
37.53 &= 37 \frac{53}{100} \\
49.99 &= 49 \frac{99}{100} \\
25.2 &= 25 \frac{2}{10} \\
75.05 &= 75 \frac{5}{100}
\end{align*}
\]
Write a mixed fraction for each decimal number.

\[ 2.5 = \frac{7}{2.15} \quad \quad 8.7 = \quad \]

\[ 9.25 = \quad \quad 25.48 = \quad \]

\[ 5.63 = \quad \quad 679.42 = \quad \]

\[ 32.24 = \quad \quad 98.68 = \quad \]

Write the decimal fraction for each number.

\[ \frac{2}{10} = \quad \quad \frac{43}{57} = \quad \quad \frac{5}{10} = \quad \quad \frac{568}{10} = \quad \]

\[ \frac{4.5}{10} = \quad \quad \frac{22}{10} = \quad \quad \frac{55}{100} = \quad \]

\[ 10\frac{23}{100} = \quad \quad \frac{9}{100} = \quad \]
CET II

Write the decimal number for each fraction.

\[
\begin{align*}
33\frac{3}{10} & \quad 9\frac{5}{10} \\
687\frac{14}{100} & \quad \frac{2}{100} \\
27\frac{45}{100} & \quad \frac{6}{10}
\end{align*}
\]

Write the mixed or common fraction for each decimal number.

\[
\begin{align*}
2.48 & \quad .09 \\
335.06 & \quad 5.1 \\
57.8 & \quad 42.27
\end{align*}
\]

Write the decimal number for these number words.

\[
\begin{align*}
two \text{ and nine thousandths} & \quad \_
\\
eighty-one \text{ and seventy-two hundredths} & \quad \_
\\
one \text{ hundred thirty and four tenths} & \quad \_
\end{align*}
\]
LEVEL E, NUMERATION, SKILL 5

OBJECTIVE: Writes the correct decimal fraction for a common or mixed fraction having a denominator of either ten or one hundred, and vice versa.

STANDARD TEACHING SEQUENCE

<table>
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</thead>
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<tr>
<td>1.</td>
<td>Reviews writing fractions as decimal numbers.</td>
</tr>
<tr>
<td>2.</td>
<td>Writes fractions as decimal numbers, and vice versa.</td>
</tr>
<tr>
<td>3.</td>
<td>Writes mixed fractions for number words.</td>
</tr>
<tr>
<td>4.</td>
<td>Writes number words, mixed fractions, and decimal numbers.</td>
</tr>
<tr>
<td>5.</td>
<td>Writes mixed fractions as decimal numbers, and vice versa.</td>
</tr>
<tr>
<td>6.</td>
<td>Selects mixed fraction that means same as decimal number, and vice versa.</td>
</tr>
<tr>
<td>7.</td>
<td>Writes decimal number as mixed fraction, and vice versa.</td>
</tr>
<tr>
<td>8.</td>
<td>Matches mixed fractions and decimal numbers.</td>
</tr>
<tr>
<td>9. CET I.</td>
<td>CET II.</td>
</tr>
</tbody>
</table>

Circle pages that are to be done.
Standard Teaching Sequence, Con't.
1967-68

Teaching Aids:

*Ideal Place Value Cards*

Textbook Resources:

<table>
<thead>
<tr>
<th>Book</th>
<th>Teaching Pages</th>
<th>Practice Pages</th>
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</thead>
<tbody>
<tr>
<td>Harcourt, Brace &amp; World, 1966 Elementary Mathematics - 5</td>
<td>235, 236</td>
<td></td>
</tr>
<tr>
<td>Harcourt, Brace &amp; World, 1966 Elementary Mathematics - 6</td>
<td></td>
<td>77, 81</td>
</tr>
</tbody>
</table>
TO THE STUDENT

Write the mixed decimal fractions named by the number words.

fifteen and twelve thousandths

sixty-three and nine hundred forty-one thousandths
Write the fractions.

If you divided an object equally into 1,000 parts, one of these parts would be \(\frac{1}{1,000}\) of the object. \((\frac{1}{1,000}\) is read “one thousandth.”)

How would you write 2 parts of the object? \(\frac{2}{1000}\)

3 parts? \(\frac{3}{1000}\)

10 parts? \(\frac{10}{1000}\)

30 parts? \(\frac{30}{1000}\)

100 parts? \(\frac{100}{1000}\)

557 parts? \(\frac{557}{1000}\)
Here is a value chart.

<table>
<thead>
<tr>
<th>hundreds</th>
<th>tens</th>
<th>ones</th>
<th>tenths</th>
<th>hundredths</th>
<th>thousandths</th>
</tr>
</thead>
<tbody>
<tr>
<td>.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>One tenth</td>
</tr>
<tr>
<td>.0 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>One hundredth</td>
</tr>
<tr>
<td>.0 0 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>One thousandth</td>
</tr>
</tbody>
</table>

Write as a fraction.

.1 means \( \frac{1}{10} \)

.01 means \( \frac{1}{100} \)

.001 means \( \frac{1}{1000} \)

.005 means \( \frac{5}{1000} \)

.018 means \( \frac{18}{1000} \)

Write the fraction.

Seven thousandths \( \frac{7}{1000} \)

Eighty-one thousandths \( \frac{81}{1000} \)

One hundred one thousandths \( \frac{101}{1000} \)
Fill in the chart.

<table>
<thead>
<tr>
<th>Number Words</th>
<th>Fraction</th>
<th>Decimal Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>seven thousandths</td>
<td>$\frac{7}{1000}$</td>
<td>.007</td>
</tr>
<tr>
<td>seventeen thousandths</td>
<td>$\frac{17}{1000}$</td>
<td>.017</td>
</tr>
<tr>
<td>twenty-five thousandths</td>
<td>$\frac{25}{1000}$</td>
<td>.025</td>
</tr>
<tr>
<td>forty-four thousandths</td>
<td>$\frac{44}{1000}$</td>
<td>.044</td>
</tr>
<tr>
<td>one hundred twelve thousandths</td>
<td>$\frac{112}{1000}$</td>
<td>.112</td>
</tr>
<tr>
<td>two hundred forty thousandths</td>
<td>$\frac{240}{1000}$</td>
<td>.240</td>
</tr>
<tr>
<td>seven hundred thousandths</td>
<td>$\frac{700}{1000}$</td>
<td>.700</td>
</tr>
<tr>
<td>seven hundred fifty thousandths</td>
<td>$\frac{750}{1000}$</td>
<td>.750</td>
</tr>
<tr>
<td>thirty thousandths</td>
<td>$\frac{30}{1000}$</td>
<td>.030</td>
</tr>
</tbody>
</table>
A decimal fraction for thousandths has 3 digits after the decimal point.

Write a decimal fraction for these number words.

one thousandth  \( .001 \)

four thousandths  \( .004 \)

thirty-five thousandths  \( .035 \)

three hundred twenty-seven thousandths  \( .327 \)

eight thousandths  \( .008 \)

fifty thousandths  \( .050 \)

one hundred thousandths  \( .100 \)

one hundred five thousandths  \( .105 \)

seven hundred forty thousandths  \( .740 \)

two hundred fifty-three thousandths  \( .253 \)

five thousandths  \( .005 \)

twenty thousandths  \( .025 \)

For extra practice, do Page 14.
Circle the correct number word for each of the following decimal fractions.

<table>
<thead>
<tr>
<th>Number</th>
<th>Fraction</th>
<th>Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>.008</td>
<td>eight hundredths</td>
<td>eight thousandths</td>
</tr>
<tr>
<td>.04</td>
<td>four hundredths</td>
<td>four thousandths</td>
</tr>
<tr>
<td>.006</td>
<td>six hundredths</td>
<td>six thousandths</td>
</tr>
<tr>
<td>.3</td>
<td>three hundredths</td>
<td>three thousandths</td>
</tr>
<tr>
<td>.07</td>
<td>seven hundredths</td>
<td>seven thousandths</td>
</tr>
<tr>
<td>.1</td>
<td>one hundredth</td>
<td>one thousandth</td>
</tr>
</tbody>
</table>
The place value of the last digit tells us how to read a decimal fraction.

Circle the number words named by the decimal fractions.

<table>
<thead>
<tr>
<th>Decimal</th>
<th>Number Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>.11</td>
<td>eleven tenths</td>
</tr>
<tr>
<td></td>
<td>(eleven hundredths)</td>
</tr>
<tr>
<td></td>
<td>one hundredth</td>
</tr>
<tr>
<td>.011</td>
<td>one thousandth</td>
</tr>
<tr>
<td></td>
<td>eleven hundredths</td>
</tr>
<tr>
<td></td>
<td>eleven thousandths</td>
</tr>
<tr>
<td>.020</td>
<td>twenty thousandths</td>
</tr>
<tr>
<td></td>
<td>twenty hundredths</td>
</tr>
<tr>
<td></td>
<td>two thousandths</td>
</tr>
<tr>
<td>.500</td>
<td>five thousandths</td>
</tr>
<tr>
<td></td>
<td>five hundred</td>
</tr>
<tr>
<td></td>
<td>five hundred thousandths</td>
</tr>
<tr>
<td>.008</td>
<td>eight thousandths</td>
</tr>
<tr>
<td></td>
<td>eight tenths</td>
</tr>
<tr>
<td></td>
<td>eight hundred thousandths</td>
</tr>
</tbody>
</table>

For extra practice, do Page 15.
Here is a mixed decimal fraction.

\[ 4 \cdot 2 \frac{5}{100} \]

four and twenty-five hundredths

The word "and" separates the whole number from the decimal fraction.

4.25 can be written as \( \frac{25}{100} \) or \( \frac{425}{100} \).

Now study this example.

\[ 6 \cdot 3 \frac{44}{1000} \]
six and three hundred forty-four thousandths

This mixed decimal fraction can also be written like this.

\[ 6.344 = 6 \frac{344}{1000} \text{ or } 6 \frac{344}{1000} \]

Fill in the blanks.

6 and 75 hundreds is the same as \( 6.75 \)

2 and 313 thousandths is the same as \( 2.313 \)

3 and 5 tenths is the same as \( 3.5 \)

14 and 37 hundreds is the same as \( 14.37 \)
Draw a circle around the whole number part of the mixed decimal fraction.

\[
\begin{array}{ccc}
0.67 & 0.676 & 6.876 \\
0.13 & 0.413 & 0.41 \\
0.03 & 0.03 & 0.345 \\
0.91 & 0.69 & 0.697 \\
\end{array}
\]

Circle the mixed decimal fraction named by the number words.

\[
\begin{array}{c}
0.67 \\
\text{six and seven tenths.} \\
6.7 \\
6.07 \\
0.905 \\
nine and five hundredths. \\
9.005 \\
9.05 \\
1.012 \\
ten and twelve hundredths \\
10.12 \\
1.012 \\
13.20 \\
\text{thirteen and twenty hundredths} \\
1.320 \\
.1320 \\
\end{array}
\]

For extra practice, do page 16.
Draw a circle around the mixed decimal fraction for these number words.

<table>
<thead>
<tr>
<th>Number Words</th>
<th>Decimal Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>sixteen and four thousandths</td>
<td>16.4</td>
</tr>
<tr>
<td>nine and three thousandths</td>
<td>9.003</td>
</tr>
<tr>
<td>eight and fourteen thousandths</td>
<td>8.014</td>
</tr>
<tr>
<td>twenty-one and seven thousandths</td>
<td>21.007</td>
</tr>
<tr>
<td>twenty-five and one hundred thousandths</td>
<td>25.001</td>
</tr>
<tr>
<td>thirty-three and thirty-three thousandths</td>
<td>33.033</td>
</tr>
<tr>
<td>forty and four thousandths</td>
<td>40.400</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOTAL POINTS</th>
<th>NUMBER CORRECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

LEVEL: E   UNIT: 01   SKILL: 6   PAGE: 9
Write the mixed decimal fraction for these number words.

seven and three-tenths  \( 7.3 \)

eight and five hundredths  \( 8.05 \)
five and two thousandths  \( 5.002 \)
four and fifteen hundredths  \( 4.15 \)
ten and eleven thousandths  \( 10.011 \)
sixteen and twelve thousandths  \( 16.012 \)
twenty and one hundred thousandths  \( 21.100 \)
twenty-one and thirty hundredths  \( 21.30 \)
fourteen and seventy-one hundredths  \( 14.71 \)
one and one thousandth  \( 1.001 \)
two and two hundredths  \( 2.02 \)
nine and seven-tenths  \( 9.7 \)

For extra practice, do Page 17.
As you have learned, there is more than one way to write a mixed decimal fraction.

4.25 may be written \( \frac{425}{100} \) or \( 4 \frac{25}{100} \) or 4 and 25 hundredths.

Another way to write 4.25 is 425 hundredths.

Now read the number words and fill in the blanks.

- 425 hundredths = \( 4.25 \)
- 330 hundredths = \( 3.30 \)
- 5342 thousandths = \( 5.342 \)
- 35 tenths = \( 3.5 \)
- 63 tenths = \( 6.3 \)
- 971 hundredths = \( 9.71 \)
Write the mixed decimal fraction for these number words.

Thirty and four hundred twenty-five thousandths  

Six and four tenths

Eighty and two hundredths

Fifty-three and seven hundred nine thousandths

Thirty-seven and forty-nine hundredths

Eighteen and three hundred ninety-nine thousandths

Four hundred sixty-eight and three-tenths

One thousand and one hundredth

Sixty-seven and one hundred fifty thousandths
CET I

Write the number words for these mixed decimal numerals.

1.6
71.073
18.962

Write the decimal numeral for these number words.

two and four hundred thousandths
twenty-three and twenty-nine thousandths
three hundred one and thirty-three hundredths
sixty and four hundred two thousandths

Write these decimal numerals as mixed fractions.

6.034 =
7.883 =
62.003 =
100.001 =
A decimal fraction for thousandths has 3 digits after the decimal point.

Circle the numerals below that are decimal fractions for thousandths.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>.375</td>
<td>.4</td>
<td>.006</td>
<td>.20</td>
</tr>
<tr>
<td>.029</td>
<td>.020</td>
<td>.12</td>
<td>.76</td>
</tr>
</tbody>
</table>

Circle the decimal fraction that is the same as the number word.

<table>
<thead>
<tr>
<th>Number Word</th>
<th>Decimal Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>seven thousandths</td>
<td>.007</td>
</tr>
<tr>
<td>.7</td>
<td></td>
</tr>
<tr>
<td>forty thousandths</td>
<td>.040</td>
</tr>
<tr>
<td>.4</td>
<td></td>
</tr>
<tr>
<td>six hundred fifty thousandths</td>
<td>.650</td>
</tr>
<tr>
<td>.065</td>
<td></td>
</tr>
<tr>
<td>.665</td>
<td></td>
</tr>
<tr>
<td>three thousandths</td>
<td>.003</td>
</tr>
<tr>
<td>.03</td>
<td></td>
</tr>
<tr>
<td>seventeen thousandths</td>
<td>.017</td>
</tr>
<tr>
<td>.17</td>
<td></td>
</tr>
<tr>
<td>.170</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL NUMBER POINTS CORRECT: 13
Write .600 in the place value chart below.

<table>
<thead>
<tr>
<th></th>
<th>6</th>
<th>0</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>tenths</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hundredths</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>thousandths</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The last digit falls in the thousandths place, so .600 is read as “six hundred thousandths.”

Circle the number words named by the decimal fractions.

fifty hundredths

.050 (fifty thousandths)

five thousandths

six hundredths

.006 six hundred thousandths

six thousandths

fifteen thousands

.015 fifteen hundredths

fifteen tenths

seven hundred twenty

.720 seven hundred twenty hundredths

seven hundred twenty thousandths
A mixed decimal fraction has a whole number and a decimal fraction.

Study this example.

\[
6.051
\]
Six and fifty-one thousandths

Circle the mixed decimal fraction named by the number words.

4.7

four and seven thousandths

\(4.007\)

8.012

eight and twelve hundredths

\(8.12\)

8.120

\(11.019\)

eleven and nineteen thousandths

\(11.19\)

11.190

1.50

one and five hundredths

\(1.05\)
Write the mixed decimal fraction named by the number words.

Seventy-five and twenty-one thousandths
75.021

Ninety-nine and twelve hundredths
99.12

Three hundred and seven thousandths
300.007

One and six hundred fifty-five thousandths
1.655

Forty-four and four thousandths
44.004

Seventeen and six hundred thousandths
17.600

Eighty and two hundredths
80.02

One hundred and sixteen hundredths
100.16

TOTAL POINTS NUMBER CORRECT
7

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>UNIT</th>
<th>SKILL</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>01</td>
<td>6</td>
<td>17</td>
</tr>
</tbody>
</table>
CET II

Write the decimal numeral for these number words.

nine and two hundredths  

forty-six and three hundred twenty-two thousandths  

five hundred one and eight-tenths  

ninety and seven hundred three thousandths  

Write the number words for these mixed decimal numerals.

26.04  
3.697  
5.9  

Write these decimal numerals as mixed fractions.

7.049  
35.004  

9.854  
100.09
**LEVEL E, NUMERATION, SKILL 6**

**OBJECTIVE:** Writes or selects number words for mixed decimal fractions to thousandths and vice versa.

**STANDARD TEACHING SEQUENCE**

<table>
<thead>
<tr>
<th>Page</th>
<th>Supplementary Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Writes fractional equivalents for parts of 1,000.</td>
</tr>
<tr>
<td>2.</td>
<td>Writes fractional equivalents for three-digit decimals.</td>
</tr>
<tr>
<td>3.</td>
<td>Fills in chart with fractional and decimal equivalents to number words.</td>
</tr>
<tr>
<td>4.</td>
<td>Writes decimal fractions (three-digit) for number words.</td>
</tr>
<tr>
<td>5.</td>
<td>Circles number word for one-, two-, and three-digit decimals.</td>
</tr>
<tr>
<td>6.</td>
<td>Circles number words for decimals.</td>
</tr>
<tr>
<td>7.</td>
<td>Explanation of mixed decimal fraction.</td>
</tr>
<tr>
<td>8.</td>
<td>Circles whole number part of mixed decimal fractions and circles mixed decimal fractions named by number words.</td>
</tr>
<tr>
<td>9.</td>
<td>Circles mixed decimal fractions for number words.</td>
</tr>
<tr>
<td>10.</td>
<td>Writes mixed decimal fractions for number words.</td>
</tr>
<tr>
<td>11.</td>
<td>Fills in blanks for mixed decimal fractions.</td>
</tr>
<tr>
<td>12.</td>
<td>Writes mixed decimal fractions for number words.</td>
</tr>
<tr>
<td>13.</td>
<td>CET I.</td>
</tr>
<tr>
<td></td>
<td>CET II.</td>
</tr>
</tbody>
</table>

Circle pages that are to be done.
Standard Teaching Sequence, Con't.
1967-68

Teaching Aids:

*Ideal* Place Value Cards
Standard Teaching Sequence Booklet

TEACHER'S EDITION

LEVEL E

NUMERATION (01)

SKILL 7

Based upon materials developed by The Mathematics Curriculum Staff, Learning Research and Development Center, University of Pittsburgh; Joseph I. Lippman, Ph.D., Director; Edith Hubert; Barbara Thomas.

Written by the staff of Appleton-Century-Crafts under the direction of Jerome B. Keaton, Ed.D., Teachers College, Columbia University.

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TO THE STUDENT

Can you write these mixed fractions as mixed decimal fractions?

$$7 \frac{3}{10} = $$

$$46 \frac{237}{1000} = $$

$$33 \frac{28}{100} = $$

You will learn how to do it in this booklet.

Answers

<table>
<thead>
<tr>
<th>7.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>46.237</td>
</tr>
<tr>
<td>33.28</td>
</tr>
</tbody>
</table>
A common fraction is a fraction with no whole number part. $\frac{2}{3}$ is a common fraction.

A mixed fraction is a numeral with a whole number part and a fraction part. $2\frac{2}{3}$ is a mixed fraction.

Circle the common fractions below.

$\frac{6}{100}$  $\frac{7}{10}$  $\frac{4}{4}$  $\frac{39}{70}$  $4.2$

Put a \[\square\] around the mixed fractions above.

A pure decimal fraction is a decimal number with no whole number part.

.74 is a pure decimal fraction.

A mixed decimal fraction is a decimal number with a whole number part.

2.74 is a mixed decimal fraction.

Circle the pure decimal fractions below.

$7.34$  $\frac{2}{3}$  $.93$  $7\frac{1}{10}$  $.86$  $2.9$

Put a \[\square\] around the mixed decimal fractions above.

For extra practice, do Page 10.
.001 is read one thousandth.

One thousandth is 1 of 1000 equal parts.

1 of 1000 equal parts written as a fraction is \( \frac{1}{1000} \).

\[ .001 = \frac{1}{1000} \]

Write a common fraction which equals each pure decimal fraction below.

\[ .001 = \frac{1}{1000} \quad .008 = \frac{8}{1000} \]
\[ .006 = \frac{6}{1000} \quad .009 = \frac{9}{1000} \]
\[ .049 = \frac{49}{1000} \quad .010 = \frac{10}{1000} \]
\[ .127 = \frac{127}{1000} \quad .020 = \frac{20}{1000} \]
\[ .693 = \frac{693}{1000} \quad .099 = \frac{99}{1000} \]
\[ .070 = \frac{70}{1000} \quad .100 = \frac{100}{1000} \]
\[ .003 = \frac{3}{1000} \quad .487 = \frac{487}{1000} \]
\[ .561 = \frac{561}{1000} \quad .620 = \frac{620}{1000} \]
When you write a decimal fraction as a common fraction, the place value of the last digit on the right of the decimal number tells you if the fraction is tenths, hundredths, or thousandths.

.21 the last digit is in the hundredths place
so .21 = \frac{21}{100}

.7 the last digit is in the tenths place
so .7 = \frac{7}{10}

.657 the last digit is in the thousandths place
so .657 = \frac{657}{1000}

.002 the last digit is in the thousandths place
so .002 = \frac{2}{1000}

.04 the last digit is in the hundredths place
so .04 = \frac{4}{100}

.060 the last digit is in the thousandths place
so .060 = \frac{60}{1000}

.471 the last digit is in the thousandths place
so .471 = \frac{471}{1000}

For extra practice, do Page 11.
When you write a decimal number as a mixed fraction you first write the whole number part then the fraction part. The last digit of the decimal fraction tells whether the fraction is tenths, hundredths, or thousandths.

In these problems circle the whole number part, say the place value of the last digit to yourself, then write each number as a mixed fraction.

\[
\begin{align*}
(56) \quad 0.04 &= 56 \frac{4}{100} \\
(25) \quad 0.005 &= 25 \frac{5}{1000} \\
(56) \quad 7 &= 56 \frac{7}{10} \\
(6) \quad 0.25 &= 6 \frac{25}{100} \\
(100) \quad 0.635 &= 100 \frac{635}{1000} \\
(94) \quad 0.94 &= 94 \frac{94}{100} \\
(26) \quad 0.9 &= 26 \frac{9}{10} \\
(7) \quad 125 &= 7 \frac{125}{1000} \\
(65) \quad 0.93 &= 65 \frac{93}{100}
\end{align*}
\]

For extra practice, do Page 12.
Write these decimal numbers as common or mixed fractions. Remember that the place value of the last digit tells you if the fraction is tenths, hundredths, or thousandths.

\[ .06 = \frac{6}{100} \quad \quad \quad 6.75 = 6 \frac{75}{100} \]
\[ 2.75 = 2 \frac{75}{100} \quad \quad .007 = \frac{7}{1000} \]
\[ 75.1 = 75 \frac{1}{10} \quad \quad 75.63 = 75 \frac{63}{100} \]
\[ 24.064 = 24 \frac{64}{1000} \quad \quad 49.73 = 49 \frac{73}{100} \]
\[ 100.621 = 100 \frac{621}{1000} \quad \quad 56.792 = 56 \frac{792}{1000} \]
\[ 25.7 = 25 \frac{7}{10} \quad \quad .671 = \frac{671}{1000} \]
\[ 38.65 = 38 \frac{65}{100} \quad \quad 9.76 = 9 \frac{76}{100} \]
\[ .9 = \frac{9}{10} \quad \quad 76.142 = 76 \frac{142}{1000} \]

For extra practice, do Page 13.
Each box below is divided into 100 equal parts. Shade each box to show the meaning of the decimal numeral in front of it.
This number line shows decimal numbers between 0 and 1. It is divided into tenths.

In each blank, write the number of tenths that comes just before the given number.

\[
\begin{align*}
0.3 & \quad 0.4 \\
0.8 & \quad 0.9 \\
0.5 & \quad 0.6
\end{align*}
\]

This number line shows decimal numbers between 4 and 5. It is divided into tenths.

Find the following numbers on the number line. Circle the points on the number line labeled by these numbers.

4.5 4.7 5.0 4.1

This number line shows decimal numbers between .4 and .5. It is divided into hundredths.

Circle the points on the number line labeled by these numbers.

.45 .47 .50 .43

TOTAL POINTS: 12
Number line A goes from 0 to 2.5. It is divided into tenths.

Find and label these points on Number line A.

\[
\begin{align*}
&0.4 \\
&0.7 \\
&1.2 \\
&2.3
\end{align*}
\]

Number line B goes from 1.80 to 2.05. It is divided into hundredths.

Find and label these points on Number line B.

\[
\begin{align*}
&1.86 \\
&1.88 \\
&1.93 \\
&2.02
\end{align*}
\]

Number line C goes from 1.950 to 1.975. It is divided into thousandths.

Find and label these points on Number line C.

\[
\begin{align*}
&1.969 \\
&1.952 \\
&1.973 \\
&1.961
\end{align*}
\]

For extra practice, do Page 14.
CET I

Write the answer to each problem in the blank.

Write 2.071 as a mixed fraction. _______

Write 1.9 as a fraction. _______

Write 1.9 in words. ________________________

Write 3.971 in words. ________________________

Write .001 as a fraction. _______

Shade the circles to show 1.5.

Write each set of numbers in order from largest to smallest.

3.47  3.07  3.74  —  —  —

26.01  10.26  62.10  —  —  —

.001  .010  .100  —  —  —
A common fraction is a fraction with no whole number part.

\[ \frac{1}{2} \text{ is a common fraction} \]

A mixed fraction is a numeral with a whole number part and a fraction part.

\[ 4 \frac{3}{4} \text{ is a mixed fraction} \]

A pure decimal fraction is a decimal number with no whole number part.

\[ .06 \text{ is a pure decimal fraction} \]

A mixed decimal fraction is a decimal number with a whole number part.

\[ 7.8 \text{ is a mixed decimal fraction} \]

\[ \begin{array}{cccc}
4.59 & \frac{2}{5} & 6 \frac{1}{2} & .4 \\
\end{array} \]

Write the number above which is a common fraction. \[ \frac{2}{5} \]

Which number is a pure decimal fraction? \[ .4 \]

Which number is a mixed decimal fraction? \[ 4.59 \]

Which number is a mixed fraction? \[ 6 \frac{1}{2} \]
Fill the place value chart, write the place value of the last digit of each decimal fraction, then write a common fraction which equals the decimal fraction.

<table>
<thead>
<tr>
<th>tenths</th>
<th>hundredths</th>
<th>thousandths</th>
<th>The last digit is in the</th>
</tr>
</thead>
<tbody>
<tr>
<td>.73</td>
<td>7</td>
<td>3</td>
<td>hundredths place.</td>
</tr>
<tr>
<td></td>
<td>73</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ .73 = \frac{73}{100} \]

<table>
<thead>
<tr>
<th>.4</th>
<th>4</th>
<th></th>
<th>tenths place.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

\[ .4 = \frac{4}{10} \]

<table>
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<tr>
<th>.625</th>
<th>6</th>
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<th>thousandths place.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>625</td>
<td>5</td>
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</table>

\[ .625 = \frac{625}{1000} \]

<table>
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<th>.008</th>
<th>0</th>
<th>0</th>
<th>thousandths place.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>0</td>
<td>8</td>
</tr>
</tbody>
</table>

\[ .008 = \frac{8}{1000} \]

<table>
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<tr>
<th>.06</th>
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<th>hundredths place.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>06</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ .06 = \frac{6}{100} \]
What is the whole number part of 9.21? 

What is the pure decimal fraction part of 9.21? 

Write .21 as a common fraction. 

To write 9.21 as a mixed fraction first write the whole number part and then write the common fraction part.

\[ 9.21 = 9 \frac{21}{100} \]

What is the whole number part of 20.674? 

What is the pure decimal fraction part of 20.674? 

Write .674 as a common fraction. 

\[ 20.674 = 20 \frac{674}{1000} \]

What is the whole number part of 47.3? 

What is the pure decimal fraction part of 47.3? 

Write .3 as a common fraction.

\[ 47.3 = 47 \frac{3}{10} \]

Write the following as mixed fractions.

\[ 3.41 = 3 \frac{41}{100} \]

\[ 82.074 = 82 \frac{74}{1000} \]
Circle the common or mixed fraction that means the same as the decimal fraction. Remember that the decimal point separates the whole number part from the fraction part.

- .08: $\frac{8}{1000}$
- 2.7: $2\frac{7}{10}$
- 20.475: $20\frac{475}{1000}$
- 6.03: $6\frac{3}{100}$
This number line shows decimal numbers between 2.0 and 3.5. It is divided into tenths. Write the missing numbers on the blanks below this number line.

\[2.0 \quad 2.1 \quad 2.2 \quad 2.3 \quad 2.4 \quad 2.5 \quad 2.6 \quad 2.7 \quad 2.8 \quad 2.9 \quad 3.0 \quad 3.1 \quad 3.2 \quad 3.3 \quad 3.4 \quad 3.5\]

This number line shows decimal numbers between 0 and .12. It is divided into hundredths. Write the missing numbers on the blanks below this number line.

\[0 \quad .01 \quad .02 \quad .03 \quad .04 \quad .05 \quad .06 \quad .07 \quad .08 \quad .09 \quad .10 \quad .11 \quad .12\]

This number line shows decimals between .060 and .072. It is divided into thousandths. Write the missing numbers on the blanks below this number line.

\[.060 \quad .061 \quad .062 \quad .063 \quad .064 \quad .065 \quad .066 \quad .067 \quad .068 \quad .069 \quad .070 \quad .071\]
Write the answer to each problem in the blank.

Write 3.415 as a **mixed fraction**. ________

Write 1.8 as a **mixed fraction**. ________

Write 4.205 in **words**. __________________________

Write .006 as a **fraction**. ________

Write 24.32 in **words**. __________________________

Shade the boxes to show 1.6. [Diagram of shaded boxes]

Write each set of numbers in order from smallest to largest.

3.05 2.05 5.03 |__________|__________|__________|

9.62 9.12 9.96 |__________|__________|__________|

4.05 3.15 4.16 |__________|__________|__________|
OBJECTIVE: Converts mixed decimal fractions to thousandths and various other forms. For example, pictures; common or mixed fractions; position on number line. Limit of whole numbers to 100.

STANDARD TEACHING SEQUENCE

<table>
<thead>
<tr>
<th>Page</th>
<th>Supplementary Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Identifies common fractions, mixed fractions, pure decimal fractions, and mixed decimal fractions.</td>
</tr>
<tr>
<td>2.</td>
<td>Writes common fractions for pure decimal fractions.</td>
</tr>
<tr>
<td>3.</td>
<td>Writes place value of last digit of pure decimal fractions, then writes common fraction for given pure decimal fractions, then writes common fraction for given pure decimal fraction.</td>
</tr>
<tr>
<td>4.</td>
<td>Circles whole number part of mixed decimal fraction; writes mixed fraction equivalent.</td>
</tr>
<tr>
<td>5.</td>
<td>Writes common or mixed fraction equal to given pure or mixed decimal fraction.</td>
</tr>
<tr>
<td>6.</td>
<td>Shades area of hundreds square to correspond with given pure decimal fraction.</td>
</tr>
<tr>
<td>7.</td>
<td>Locates and labels pure and mixed decimal fractions on number line.</td>
</tr>
<tr>
<td>8.</td>
<td>Locates and labels pure and mixed decimal fractions on number line.</td>
</tr>
<tr>
<td>9.</td>
<td>CET I.</td>
</tr>
<tr>
<td></td>
<td>CET II.</td>
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</table>

Circle pages that are to be done.
Standard Teaching Sequence Booklet

TEACHER'S EDITION
LEVEL E
NUMERATION (01)
SKILL 8

Based upon materials developed by The Mathematics Curriculum Staff, Learning Research and Development Center, University of Pittsburgh; Joseph I. Lipson, Ph.D., Director; Edith Kohut; Barbara Thomas.

Written by the staff of Appleton-Century-Crofts under the direction of Jerome D. Kaplan, Ed.D., Teachers College, Columbia University

Appleton-Century-Crofts Division of Meredith Publishing Company

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DEVELOPMENTAL EDITION
TO THE STUDENT

Put these numbers in order from smallest to largest.

5.751  5.093  5.749

Answers

5.093
5.749
5.751
You can use number lines to help decide if one decimal fraction is greater or less than another decimal fraction.

Here is a number line divided into tenths.

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

.4 is less than (<) .5 because \( \frac{4}{10} \) is < \( \frac{5}{10} \). Use the number line to help you see which decimal fractions are larger or smaller.

Using the number line above, put > or < in the circle provided to make a true statement.

\[
\begin{array}{cc}
.8 & .4 \\
.7 & .9 \\
.2 & .6 \\
1.0 & .9
\end{array}
\]

Here is a number line divided into hundredths.

0 .01 .02 .03 .04 .05 .06 .07 .08 .09

Is .02 < or > .06? .06 is greater than .02 because \( \frac{6}{100} \) is greater than \( \frac{2}{100} \). You can use a number line to help you figure out which decimal fraction is larger or smaller.

This number line shows decimals between 3.79 and 3.81. It is divided into thousandths.

Using the number line above, put > or < in the circles to make a true statement.

\[
\begin{array}{cc}
3.796 & 3.797 \\
3.804 & 3.800 \\
3.804 & 3.8
\end{array}
\]

\[
\begin{array}{cc}
3.797 & 3.805 \\
3.808 & 3.804 \\
3.81 & 3.809
\end{array}
\]
Compare .8 and .09. Which is larger?

Here is how to compare each number.

\[ 8 = \frac{8}{10} \text{ and } .09 = \frac{9}{100} \]

\[ \frac{8}{10} (8 \times 10) = \frac{80}{100} \text{ (another name for } \frac{8}{10}) \]

\[ \frac{80}{100} > \frac{9}{100} \text{ so: } .8 \square .09 \]

Fill in the circles with > or <.

\[ .07 \square .1 \]

Think, \( .07 = \frac{7}{100} \)

\[ .1 = \frac{1}{10} \]

but \( \frac{1}{10} = \frac{10}{100} \text{ so } \frac{7}{100} < \frac{10}{100} \text{ and } .07 < .1 \)

\[ .08 \square .8 \]

\[ .07 \square .7 \]

\[ .06 \square .6 \]

\[ .05 \square .5 \]

\[ .04 \square .4 \]

\[ .03 \square .3 \]

\[ .02 \square .2 \]

\[ .01 \square .1 \]

For extra practice, do Page 13.
Put > or < in the circle.

91.77 ☐ 90.84

To compare mixed decimal fractions, first look at the whole numbers. If they are different, they are easily compared.

For example, 8.06 ? 6.16

If the whole numbers are the same you must look at the fractional part of the number and compare them as you learned.

For example, 8.06 ? 8.16

same whole number different fractional part

The decimal part can then be written as a fraction

.06 ? .16 is \( \frac{6}{100} \) ? \( \frac{16}{100} \).

Fill in the circles with > or <.

14.03 ☐ 15.3
4.31 ☐ 4.36
25.053 ☐ 26.055
19.09 ☐ 19.9
21.302 ☐ 22.301
18.400 ☐ 18.401
Put > or < in the circles to make the statement true.

6.40 < 6.50   10.42 > 10.32
6.41 < 6.50   10.42 > 10.33
6.42 < 6.50   10.42 > 10.34

7.30 > 7.20   11.83 < 11.90
7.30 > 7.21   11.84 < 11.90
7.30 > 7.22   11.85 < 11.90

8.55 < 8.65   15.10 < 15.20
8.56 < 8.65   15.11 < 15.21
8.57 < 8.65   15.12 < 15.22

<table>
<thead>
<tr>
<th>TOTAL POINTS</th>
<th>NUMBER CORRECT</th>
<th>LEVEL</th>
<th>UNIT</th>
<th>SKILL</th>
<th>PAGE</th>
</tr>
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<td>18</td>
<td></td>
<td>01</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
Put > or < in the circles to make the statement true.

4.390 < 4.40  
4.391 < 4.40  
4.392 < 4.40  
6.900 < 6.897  
6.900 < 6.898  
6.900 < 6.899  
10.441 < 10.451  
10.442 < 10.452  
10.443 < 10.450  
20.354 < 20.345  
20.354 < 20.346  
20.354 < 20.347

TOTAL POINTS | NUMBER CORRECT
--- | ---
21 | 21

LEVEL | UNIT | SKILL | PAGE
--- | --- | --- | ---
E | 01 | 8 | 5
Put a > or < in the circles. Remember, look at the whole numbers first.

41.35 > 40.32
65.011 > 64.077
71.253 > 71.252
76.509 > 76.409
33.21 > 33.20
42.830 > 42.829
55.505 > 55.055
81.011 > 81.003
12.5 > 12.05
16.339 > 15.339

TOTAL POINTS
10

NUMBER CORRECT

LEVEL  UNIT  SKILL  PAGE
E  01  8  6
Circle the largest number in each set.

0.84  0.90  0.79  4.5  4.8  4.0

27.3  20.3  23.7  18.09  18.003  18.1

16.552  16.553  16.6  9.01  9.225  9.31

0.735  0.829  0.80  0.731  0.733  0.740

For extra practice, do Page 14.
Circle the smallest number in each set.

<table>
<thead>
<tr>
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<th>.25</th>
<th>.244</th>
<th>.09</th>
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|-------|-------|-------|-------|-------|-------|

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<tbody>
<tr>
<td>E</td>
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338
Put each set of numbers in order from smallest to largest.

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<th>.853</th>
<th>.850</th>
<th>.859</th>
<th>.33</th>
<th>.4</th>
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<td></td>
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<td>.017</td>
<td>.113</td>
<td>9.116</td>
<td>9.6</td>
<td>.96</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>8.05</td>
<td>8.005</td>
<td>.443</td>
<td>.405</td>
<td>.550</td>
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</tr>
<tr>
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<td>.730</td>
<td>.733</td>
<td>.2</td>
<td>.015</td>
<td>.013</td>
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</tbody>
</table>

For extra practice, do Page 15.
Put each set of numerals in order from smallest to largest.

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<td>1.035</td>
<td>1.036</td>
<td>1.1</td>
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<tr>
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<td>8.112</td>
<td>1.035</td>
<td>1.036</td>
<td>1.1</td>
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</tbody>
</table>
Put each set of numbers in order from \textbf{largest} to \textbf{smallest}.

<table>
<thead>
<tr>
<th>.351</th>
<th>.355</th>
<th>.309</th>
<th>.075</th>
<th>.125</th>
<th>.331</th>
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<tbody>
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<td>.351</td>
<td>.309</td>
<td>.331</td>
<td>.125</td>
<td>.075</td>
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<th>7.32</th>
<th>7.059</th>
<th>7.061</th>
<th>7.06</th>
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<td>7.36</td>
<td>7.32</td>
<td>7.061</td>
<td>7.06</td>
<td>7.059</td>
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</table>

<table>
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<th>12.09</th>
<th>12.12</th>
<th>.001</th>
<th>.111</th>
<th>.1</th>
</tr>
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<tbody>
<tr>
<td>12.5</td>
<td>12.12</td>
<td>12.09</td>
<td>.111</td>
<td>.1</td>
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<th>81.3</th>
<th>80.31</th>
<th>.446</th>
<th>.406</th>
<th>.464</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.3</td>
<td>81.31</td>
<td>80.3</td>
<td>.464</td>
<td>.446</td>
<td>.406</td>
</tr>
</tbody>
</table>

For extra practice, go to Page 16.

<table>
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<th>TOTAL POINTS</th>
<th>NUMBER CORRECT</th>
</tr>
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<tbody>
<tr>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>
**CET I**

Write each set of numbers in order from smallest to largest.

<p>| | | |</p>
<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td>.134</td>
<td>.738</td>
<td>.205</td>
</tr>
<tr>
<td>25.326</td>
<td>21.593</td>
<td>35.111</td>
</tr>
<tr>
<td>3.514</td>
<td>3.145</td>
<td>3.415</td>
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<tr>
<td>9.72</td>
<td>9.32</td>
<td>9.12</td>
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<tr>
<td>6.48</td>
<td>5.19</td>
<td>5.48</td>
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<tr>
<td>.236</td>
<td>.326</td>
<td>.623</td>
</tr>
</tbody>
</table>
Put > or < in the circles.

Why is .09 smaller than .9? To find out, rename them as fractions.

\[ .09 = \frac{9}{100} \text{ and } .9 = \frac{9}{10} = \frac{(9 \times 10)}{10 \times 10} = \frac{90}{100} \]

Then \[ \frac{9}{100} < \frac{90}{100} \text{ or } .09 < .9 \]

<table>
<thead>
<tr>
<th>.11</th>
<th>&gt;</th>
<th>.10</th>
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<tbody>
<tr>
<td>(11/100)</td>
<td>&gt;</td>
<td>(10/100)</td>
</tr>
<tr>
<td>.76</td>
<td>&lt;</td>
<td>.80</td>
</tr>
<tr>
<td>.09</td>
<td>&gt;</td>
<td>.08</td>
</tr>
<tr>
<td>.07</td>
<td>&gt;</td>
<td>.04</td>
</tr>
<tr>
<td>.30</td>
<td>&gt;</td>
<td>.29</td>
</tr>
<tr>
<td>.50</td>
<td>&lt;</td>
<td>.60</td>
</tr>
<tr>
<td>.17</td>
<td>&lt;</td>
<td>.18</td>
</tr>
<tr>
<td>.43</td>
<td>&lt;</td>
<td>.44</td>
</tr>
<tr>
<td>.13</td>
<td>&lt;</td>
<td>.15</td>
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<tr>
<td>.61</td>
<td>&gt;</td>
<td>.60</td>
</tr>
<tr>
<td>.15</td>
<td>&lt;</td>
<td>.17</td>
</tr>
</tbody>
</table>
Circle the largest number in each set.

- 1.0
- .253
- 29.50
- 29.05
- 29.005
- .735
- .079
- .113
- 2.55
- 2.50
- 2.6
- 1.785
- 1.800
- 1.729
- 3.57
- .357
- 357.0
- .541
- .451
- .154
- 76.35
- 76.351
- 76.352

<table>
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<tr>
<th>TOTAL POINTS</th>
<th>NUMBER CORRECT</th>
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</thead>
<tbody>
<tr>
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<table>
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<tbody>
<tr>
<td>E</td>
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<td>14</td>
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Put each set of numbers in order from **smallest to largest**.

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<th>Set 2</th>
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<th>Set 4</th>
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<td>.573</td>
<td>.533</td>
<td>.1</td>
<td>.5</td>
<td>.40</td>
</tr>
<tr>
<td>.533</td>
<td>.537</td>
<td>.573</td>
<td>.1</td>
<td>.5</td>
<td>.40</td>
</tr>
<tr>
<td>2.91</td>
<td>2.11</td>
<td>2.90</td>
<td>.35</td>
<td>.47</td>
<td>.21</td>
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<td>.35</td>
<td>.47</td>
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</tr>
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<td>7.06</td>
<td>7.05</td>
<td>7.5</td>
<td>4.09</td>
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<td>7.06</td>
<td>7.065</td>
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<td>4.09</td>
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</tr>
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<td>1.77</td>
<td>1.768</td>
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<td>1.76</td>
<td>1.768</td>
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**TOTAL POINTS** | **NUMBER CORRECT**  
---|---
8 |     

**LEVEL** | **UNIT** | **SKILL** | **PAGE**  
---|---|---|---
E | 01 | 8 | 15
Put each set of numbers in order from largest to smallest.

<table>
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<th>.209</th>
<th>.201</th>
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CET II

Write each set of numbers in order from smallest to largest.

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</table>
LEVEL E, NUMERATION, SKILL 8

**OBJECTIVE:** Orders a collection of pure and mixed decimal fractions. Decimal part to thousandths. Whole numbers to 100.

**STANDARD TEACHING SEQUENCE**

<table>
<thead>
<tr>
<th>Page</th>
<th>Standard Teaching Sequence</th>
<th>Supplementary Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Puts &gt; or &lt; between mixed and pure decimals to show relationship; uses number line.</td>
<td>13</td>
</tr>
<tr>
<td>2.</td>
<td>Puts &gt; or &lt; between two-digit pure decimals.</td>
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</tr>
<tr>
<td>3.</td>
<td>Puts &gt; or &lt; between mixed decimals.</td>
<td>14</td>
</tr>
<tr>
<td>4.</td>
<td>Puts &gt; or &lt; between mixed decimals.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Puts &gt; or &lt; between mixed decimals.</td>
<td></td>
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<tr>
<td>6.</td>
<td>Puts &gt; or &lt; between mixed decimals.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Circles largest number in set of three.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Circles smallest number in set of three.</td>
<td>15</td>
</tr>
<tr>
<td>9.</td>
<td>Rewrites sets of three decimals in order from smallest to largest.</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Rewrites sets of three decimals in order from smallest to largest.</td>
<td>16</td>
</tr>
<tr>
<td>11.</td>
<td>Rewrites sets of three decimals in order from the largest to the smallest.</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>CET I.</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>CET II.</td>
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</tbody>
</table>

Circle pages that a–e to be done.
This is the Posttest which has been completed by Eileen and corrected by the Aide.

Analyze the Posttest results and make a decision about Eileen's mastery of this unit.

Complete the record of Eileen's work in the E-Num. unit by entering the required information on the first Prescription Sheet.
LEVEL E
NUMERATION (01)

TOTAL PTS. 47/52
90%
Directions: Fill in the blanks in each row, counting forward by 1's.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<td>86,978</td>
<td>86,979</td>
<td>86,980</td>
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<tr>
<td>400,083</td>
<td>400,084</td>
<td>400,085</td>
<td>400,086</td>
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<tr>
<td>16,999</td>
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<td>17,002</td>
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<tr>
<td>982,435</td>
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<tr>
<td>999,997</td>
<td>999,998</td>
<td>999,999</td>
<td>1,000,000</td>
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</table>
NUMERATION (01) POST-TEST

Directions: Circle all of the even numbers.

178 999 1,001 42 583 776

Directions: Put an X on the word that is the correct ending for each sentence.

The sum of two odd numbers is . . .

× even  odd

The difference between two odd numbers is . . .

× even  odd

The product of two odd numbers is . . .

even × odd

The product of an odd and an even number

× even  odd
E Numeration (01) Post-Test

Directions: Round each of the numbers to the nearest hundred.

499  __500__

620  __600__

30,093  __30,000__ X

42,651  __42,700__

Directions: Estimate the answers to the problems below by first rounding the numbers to the nearest ten and then adding or subtracting. Circle the correct estimated answer.

How much does 34 yards plus 42 yards equal?

75 yards  80 yards  60 yards  __70 yards__

Jane lost 26 of her 47 paper clips. How many paper clips did Jane have left?

20  __30__  60  80  X

Tom had 19 cookies and ate eight. How many cookies did he have left?

16  __10__  30  0

621 plus 1,368?

__1,990__  2,010  1,980  1,000
Directions: Write the standard numerals for the following number words.

- six hundred seventy-three: 673
- five thousand eleven: 5,011
- one thousand seven hundred twenty-nine: 1,729
- four thousand three: 4,003

Directions: Write the following numbers in words.

- 341: three hundred forty-one
- 5,006: five thousand six
- 4,612: four thousand six hundred twelve
- 8,502: eight thousand five hundred two
Directions: Write the equivalent decimal fraction for each of these fractions.

\[
\frac{6}{10} = 0.6
\]

\[
4\frac{8}{10} = 4.8
\]

\[
92\frac{7}{100} = 92.07
\]

\[
432\frac{61}{100} = 432.61
\]

Directions: Write the equivalent fraction for each of these decimal fractions.

\[
0.8 = \frac{8}{10}
\]

\[
0.79 = \frac{79}{100}
\]

\[
63.1 = \frac{631}{10}
\]

\[
96.04 = \frac{9604}{100}
\]
Directions: Write the decimal fraction for the number words.

three and forty-six hundredths  \[3.46\]
nine and two hundredths  \[9.002\]  \(\times\)
five and six hundred five thousandths  \[5.605\]

Directions: Write these decimal fractions in number words.

7.623  seven and six hundred twenty-three thousandths
4.85  four and eighty-five hundredths
Directions: Write these decimal numbers as mixed fractions.

5.47 \( \frac{47}{100} \)

32.891 \( \frac{891}{1000} \)

87.03 \( \frac{3}{100} \)

Directions: Write these decimal numbers as common fractions.

7.3 \( \frac{73}{10} \)

6.145 \( \frac{6145}{10000} \) X

9.27 \( \frac{927}{100} \)

Directions: Draw an arrow to show the location on the number line of each decimal number.

2.5

36.75

35 36 37 38
Directions: Write each row of numbers in order from the smallest to the largest.

- Row 1: 6.09, 6.90, 0.69
  - Smallest: 0.69
  - Largest: 6.90

- Row 2: 0.82, 0.082, 8.2
  - Smallest: 0.082
  - Largest: 8.2

- Row 3: 47.5, 4.75, 4.07
  - Smallest: 4.07
  - Largest: 47.5

- Row 4: 1.330, 13.30, 0.133
  - Smallest: 0.133
  - Largest: 13.30

- Row 5: 0.957, 95.7, 9.57
  - Smallest: 0.957
  - Largest: 95.7
## MATHEMATICS PRESCRIPTION SHEET

<table>
<thead>
<tr>
<th>SCHOOL STAMP</th>
<th>U.S. 2-3</th>
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<td>Worked</td>
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### SKILL BOOKLETS

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<th>PAGE NO.</th>
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<th>SCORE</th>
<th>MAX. POINTS</th>
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### DAYS' WORKED IN SKILL

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### CODES INSTRUCTIONAL TECHNIQUE

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<td>TEACHER TUTOR</td>
</tr>
<tr>
<td>02</td>
<td>PEER TUTOR</td>
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<tr>
<td>03</td>
<td>SMALL GROUP (2-10)</td>
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<td>04</td>
<td>LARGE GROUP (11-UP)</td>
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### OVERFLOW

| U. & S. 79 |

---

359
## Mathematics Prescription Sheet

### School Stamp
- U.S. 2-3

### Student Information
- **Student Name:** [Redacted]
- **Student Number:** U.S. 4 5 6 7

### Grade
- U.S. 9

### Unit
- **Unit Dates:**
  - **UnitBegan:** U. 13-16
  - **UnitEnded:** U. 17-20
- **Days Worked:** U. 21-22

### Skill Booklets
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### Pre and Post Test Scores

### Codes and Instructional Technique

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<td>Peer Tutor</td>
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<td>Small Group (2-10)</td>
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<td>Large Group (11-Up)</td>
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<td>Others</td>
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### Pre and Post Test Scores

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### School Calendar
- **Began:** U. 23-25
- **Ended:** U. 26-28

### Notes
<table>
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<th>UNIT BEGAN</th>
<th>UNIT ENDED</th>
<th>DAYS WORKED</th>
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<td>PEER TUTOR</td>
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<tr>
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<td>LARGE GROUP (11-UP)</td>
</tr>
<tr>
<td>05</td>
<td>SEMINAR</td>
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<tr>
<td>06</td>
<td>CURR. TEXTS</td>
</tr>
<tr>
<td>07</td>
<td>OTHER TEXTS</td>
</tr>
<tr>
<td>08</td>
<td>FILM STRIPS</td>
</tr>
<tr>
<td>09</td>
<td>RECORDS, TAPES</td>
</tr>
<tr>
<td>10</td>
<td>RESEARCH</td>
</tr>
<tr>
<td>11</td>
<td>TUTOR OF OTHERS</td>
</tr>
<tr>
<td>12</td>
<td>OTHERS</td>
</tr>
<tr>
<td></td>
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## Mathematics Prescription Sheet

### Student Information
- **Grade:** U.S. 9
- **Room:** [Blank]
- **Unit:** [Blank]
- **Unit Dates**
  - **Unit Began:** U. 13-16
  - **Unit Ended:** U. 17-20
- **Days Worked:** U. 21-22

### Skill Booklets

<table>
<thead>
<tr>
<th>Date</th>
<th>Pres.</th>
<th>Skill</th>
<th>Page No.</th>
<th>Inst. Tech. Codes</th>
<th>Score</th>
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<td>S. 20-21</td>
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### Curriculum Test

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<thead>
<tr>
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### Instructional Techniques

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<td>Curr. Texts</td>
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<tr>
<td>07</td>
<td>Other Texts</td>
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<td>Records, Tapes</td>
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<td>10</td>
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<td>Tutor of Others</td>
</tr>
<tr>
<td>12</td>
<td>Others</td>
</tr>
</tbody>
</table>

### Overflow
- **U. & S. 79**
## Mathematics Prescription Sheet

### Student Information
- **Grade:** U.S. 9
- **Room:** U.S. 10
- **Unit:** U.S. 10
- **Dates:**
  - **Unit Began:** U. 13-16
  - **Unit Ended:** U. 17-20
- **Days Worked:** U. 21-22

### Skill Booklets

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<thead>
<tr>
<th>Date</th>
<th>Pres.</th>
<th>Skill</th>
<th>Page No.</th>
<th>Inst. Tech. Codes</th>
<th>Score</th>
<th>Max. Points</th>
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<td>S. 20-21</td>
<td>S. 22-25</td>
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### Curriculum Test

#### Pre and Post Test Scores

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<th>Post</th>
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</thead>
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### General Notes
- **Codes:**
  - **01:** Teacher Tutor
  - **02:** Peer Tutor
  - **03:** Small Group (2-10)
  - **04:** Large Group (11-Up)
  - **05:** Seminar
  - **06:** Curr. Texts
  - **07:** Other Texts
  - **08:** Film Strips
  - **09:** Records, Tapes
  - **10:** Research
  - **11:** Tutor of Others
  - **12:** Others

- **Overflow:** U. & S. 79

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**Pre and Post Test Scores**

<table>
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<tr>
<th>Skill Booklets</th>
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**Total:** 363
TEACHING IN IPI

Section V

PLANNING TIME

Suggested setting: 1. Individual work
2. Instructional team
This section is designed to introduce you to the way IPI teachers work together as an instructional team to individualize instruction for their students.
PLANNING TIME

The teacher:

1. Meets with his instructional team to initiate planning sessions.
   a. Discusses practices and procedures for IPI planning sessions as described in this section.
   b. Revises, deletes and adds to these practices and procedures, with the team, to establish a model of a planning session for the group. (The model will specify organizational details, basic requirements, and ground rules.)
   c. Obtains copy of information developed in (b).
   d. Agrees to details (time, chairman, etc.) for next planning session.

2. Participates in planning sessions.
   a. Provides specific descriptive data about IPI students and IPI classes.
   b. Cooperates in assigning students to teachers for the week.
   c. Identifies and contributes to resolving IPI instructional problems.
   d. Accepts and implements decisions of IPI team.
   e. Acts as chairman of IPI team as needed.
   f. Reports and suggests procedures for smoother operation of IPI.
   g. Confines discussion to the topics of the session as stated in the agenda.
PLANNING TIME

IPI works to the best advantage of students when their teachers plan together as an instructional team. Time for planning is scheduled before, during or after the school day. During this time, a particular group of teachers holds planning sessions to collaborate in making instructional decisions about the students assigned to them.

In some IPI schools, planning time also includes regularly scheduled time for prescription writing. When this is done, usually 1-3 teachers work together to develop prescriptions for selected students. This involves some consultation among the teachers as each works on writing prescriptions. Since the practice of scheduling prescription writing time varies from school to school depending upon staff size and time available, and since guidelines for developing a prescription have been discussed in a previous section, this discussion will focus on planning sessions.

The planning sessions give the teachers, as a group, an opportunity to:

1. Review the progress of each student in the assigned classes.
2. Organize students, teachers, and aides for IPI instruction.
3. Share instructional problems with other teachers and to solve them by using the professional experience and thinking of the team.
4. Identify and resolve operational difficulties arising from IPI materials, physical facilities and mechanics.
5. Continue their study of individualized instruction and IPI.
Let's look at a planning session held at one IPI school to see how this time is used to accomplish these purposes.

In one school, four third-grade teachers meet every Monday at 1:15 p.m. for 45 minutes to discuss their IPI math classes. The principal and floating teacher join them. Since time is limited, the group adheres closely to an agenda prepared by the principal or some other member of the group. Two items always appear on the agenda: review of students' progress, and organization and assignments for instruction. Additional items are added as needed from week to week. This week the agenda looks like this:

IPI Planning Session
Williams Elementary School

Grade 3  Chairman Marie Brown  Date 10/31/67

1. Review of flow charts.
2. Instructional regrouping and teacher assignment.
3. Excessive amount of classtime spent by students waiting for teacher's help.
4. Demonstration of some teacher-made math games related to area of Numeration.
5. Next planning session.

Decisions: (what, who, how, when)
Reviewing flow charts is the first item on the agenda. Each class is listed on a flow chart which locates each student in the Continuum at that date:

Williams Elementary School

Teacher Janet Hicks

Grade 3

<table>
<thead>
<tr>
<th>Student</th>
<th>Date 10/94</th>
<th>Date 10/91</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anderson, Bob</td>
<td>B-Num.-1</td>
<td>B-PV-Post</td>
</tr>
<tr>
<td>2. Arsen, William</td>
<td>C-PV-3</td>
<td>C-Add.-3</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>C-Sub.-Pre</td>
<td>C-Sub.-Post</td>
</tr>
</tbody>
</table>
In addition, the students on the particular grade level are listed on one flow chart used by the principal and floating teacher. This chart represents the distribution of the students on that grade level in the Continuum by unit skill:

<table>
<thead>
<tr>
<th>Level</th>
<th>Unit Skill</th>
<th>No. of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Num. 1</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>PV</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Geom. 2</td>
<td>1</td>
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</table>

The information on this chart summarizes the progress of all the students assigned to the instructional team and is used by the principal and floating teacher to help the teachers group students for instruction.

With these charts, the IPI team is able to follow each student as he moves through the Continuum. Further, inconsistencies or undue delays in any student(s)' progress become evident immediately and the student(s) are singled out for additional attention. After this review, the listings are considered for the purposes of assigning students to teachers for IPI instruction for the following week.

At this planning session, the teachers decide all but five students will remain with their own teachers. These teachers will write the prescriptions for the students in their classes. It is decided that the
five students will be assigned to one of the teachers for three days. These students are all ready to take either a pretest or a posttest, and they will need help in reading directions. This teacher will also write their prescriptions during this time. Within the week, each student will be returned to his own class as soon as he is working on a prescription in a new skill.

In arriving at this decision, these teachers followed some general guidelines for assigning students based on individual needs to teachers for IPI classes:

1. If any students are working on the same unit skill, they are sometimes assigned to the same teacher. This is student-assignment based upon skill achievement. In this manner, the teacher to whom they are assigned can concentrate on developing individual prescriptions within a narrower range of the Continuum.

2. If any students are working on similar materials and equipment or sharing materials and equipment, they are assigned to the same teacher who will guide and supervise them as each carries out his individual prescription.

3. If any student has a particular emotional need or some personal-social characteristic that is best served by assignment to a particular teacher or with a particular peer group, he is so assigned if possible.

4. If any student requires a great deal of special help in some behavior(s) related to working in IPI math (such as reading directions, working independently, study skills, etc.), he is
assigned to a teacher particularly skilled in handling this area a/o to a group small enough to permit direct teacher guidance of the individual.

The next item on the agenda (the amount of time that students spend waiting for teacher-help) was placed there at the request of one teacher who finds herself swamped by requests from students for help during class-time. The teacher describes the situation in her class to the others in the IPI team. As they discuss the problem, the teacher realizes she has encouraged this dependency by the kind of prescriptions she has been writing and by the information-giving role she has been using. The discussion results in three concrete suggestions:

1. Vary Instructional Techniques in prescriptions; use #2, 6, 10, and 11 in particular.

2. Inform students that they are to signal for teacher-help only after they've made every attempt to work out the problem themselves.

3. Use guiding questions and provide cues related to the student's problem instead of giving the final answer.

There are other suggestions, but the teacher selects these three to be tried next week. The suggestions are recorded on the agenda under Decisions.

For the demonstration of math games, the teacher who made them distributes them to the others. They manipulate and play with the games, and discuss their use in relation to specific unit skills in Numeration. The games are given a code number to correspond to the unit skills they teach.
Then topics for the agenda of the next planning session are listed. Review of flow charts and student assignments are automatically listed. The principal asks that they include a discussion about needed revisions of IPI worksheets. The rest of the agenda is left open for addition of topics as the week goes on. It is decided that the principal will chair the next planning session and will complete the agenda for the group.
THE FOLLOWING MATERIALS OFFER A FRAMEWORK FOR DEVELOPING A MODEL OF A PLANNING SESSION FOR YOUR SCHOOL. USE THEM TO HELP YOURSELF STRUCTURE YOUR FIRST PLANNING SESSIONS. CONTINUE USING THEM TO CHECK THE DEVELOPMENT OF PLANNING SESSIONS.

1. Read the following pages:
   a. Some Organizational Details of IPI Planning Sessions
   b. Basic Requirements for a Planning Session
   c. Suggested Ground Rules for a Planning Session
   d. General Guidelines for Assigning Students to Instructional Groups in IPI

2. Arrange to meet with the others who will be on the same instructional team with you.
   a. Ask the principal to schedule a meeting to be held some time during this session for your team, and to announce the names of the team members.
   b. Ask the team members to prepare for this meeting by reading this section.

3. Meet with the instructional team as scheduled.
   a. Select a temporary chairman.
   b. Review the materials you have read.
   c. Revise, delete and add to them to make them fit the needs of the children in your school.

4. Record this information and arrange to have a copy given to each team member.

5. If time permits, start an agenda for the meeting.

6. Designate the chairman for the next meeting and set a time.

7. Adjourn and continue other work in progress.
Some Organizational Details of IPI Planning Sessions

**Time:** Usually 45-60 minutes scheduled once a week.

**IPI Instructional Team** (about 4-6 professionals)

Classroom teachers of one grade level or adjacent grade levels who teach IPI Math at the same time.

Building principal

Floating teacher* (A teacher assigned to work with this team for a specified amount of time during the week. Usually this teacher is not responsible for a register.)

IPI Coordinator* (A supervisor or assistant principal assigned the overall program responsibility of IPI in the school.)

*These are optional positions in an IPI school. Such considerations as budget, pupil-teacher ratio, administrator's workload, etc. are used to decide whether or not these positions should be created.

**Subject area**

Mathematics
Basic Requirements for a Planning Session

Agenda:

1. Completed by chairman and in the hands of the IPI team before the meeting.
2. Indicates grade, date, chairman, topics, and a space for decisions.

Flow charts:

1. Lists students by class and indicates the unit skill placement for each.
2. Distribution of students on a grade level by unit skill.

Teacher participation:

1. Provides specific descriptive data about IPI students and IPI classes.
2. Cooperates in assigning students to teachers for the week.
3. Identifies and contributes to resolving IPI instructional problems.
4. Accepts and implements decisions of IPI team.
5. Acts as chairman of IPI team as needed.
6. Reports and suggests procedures for smoother operation of IPI.
7. Confines discussion to the topics of the session as stated in the agenda.

Principal's participation:

1. Preparation for planning session:
   a. Observes and teaches in IPI classes.
   b. Keeps a record of the operation of the program, e.g. materials, aides, teacher-student relations, etc.
   c. Reviews prescriptions or a sampling of prescriptions for such things as length, accuracy, variations, etc.
   d. Reviews flow charts.
   e. Checks that all arrangements for the planning sessions have been made.
2. Participates in the planning session (see: Teacher participation) and makes a contribution of unique data as principal of the school.

3. Provides administrative support for all planning sessions, and implements decisions made at planning sessions.

4. Maintains overall responsibility for planning sessions:
   a. Guides continuity of sessions.
   b. Identifies needs for a variety of inservice training experiences.
   c. Establishes and reinforces basic ground rules for planning sessions.
   d. Assists ad hoc chairman of planning session.
Suggested Ground Rules for a Planning Session

1. Stick to the agenda.
2. Offer an alternate procedure or a tentative solution (no matter how good or bad) with every criticism or problem that is stated.
3. Work toward a consensus or general agreement on decisions made.
4. Live by the decisions made at planning sessions.
5. Participate in the instructional decision-making for all the students assigned to the teachers in the IPI team.

ADD YOUR SUGGESTIONS TO THIS LIST.
DISCUSS THE LIST WITH THE OTHERS ON YOUR INSTRUCTIONAL TEAM.
DECIDE UPON WHICH ONES YOU WILL USE IN YOUR PLANNING SESSIONS.
General Guidelines for Assigning Students
to Instructional Groups in IPI

1. If any students are working on the same unit skill, or similar unit
   skills, they are sometimes assigned to the same teacher. This is
   student-assignment based upon skill achievement. In this manner, the
   teacher to whom they are assigned can concentrate on developing
   individual prescriptions within a narrower range of the Continuum.

2. If any students are working on similar materials and equipment or
   sharing materials and equipment, they are assigned to the same
   teacher who will guide and supervise them as each carries out his
   individual prescription.

3. If any student has a particular emotional need or some personal-
   social characteristic that is best served by assignment to a par-
   ticular teacher, peer tutor or particular peer group, he is so
   assigned if possible.

4. If any student requires a great deal of special help in some be-
   havior(s) related to working in IPI math (such as reading direc-
   tions, working independently, study skills, etc.), he is assigned
   to a teacher particularly skilled in handling this area a/o to a
   group small enough to permit direct teacher guidance of the indi-
   vidual.