## MATH 401 WHOLE NUMBERS AND FRACTIONS

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Test |Pullout at the back of the booklet

## Addition and Subtraction

1.4 Write the answers to the facts.

| 3 | 3 | 8 | 4 | 3 | 6 | 8 | 7 |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | | 9 |
| ---: |
| +3 |


| 4 | 8 | 6 | 6 | 8 | 9 | 7 | 4 |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| +6 |  |  |  |  |  |  |  |


| 5 | 5 | 9 | 5 | 7 | 8 | 7 | 6 |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | | 9 |
| :--- |
| +0 |


| 6 | 12 | 13 | 9 | 15 | 13 | 8 | 13 |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | 14


| 5 | 12 | 9 | 10 | 16 | 7 | 16 | 14 |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| -0 | -7 | -9 | -5 | -9 | -0 | -8 | -6 |


| 3 | 3 | 8 | 1 | 10 | 9 | 10 | 7 |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| -2 | -0 | -4 | -1 | -8 | -4 | -9 | -5 |

You should know all of your addition and subtraction facts by now.

Digits have value because of their place in the number.


We write "how many" and then we show the value.
thousands
hundreds
tens
ones

| 8,635 | $=$ | 8 | + | 6 | + | 3 | + |
| ---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $=$ | 8,000 | + | 600 | + | 30 | + |

$1^{14}$
Complete these activities.
1.17 Write "how many" for each number and then tell the value of the digit (expand).

| 9,402 $=$ | thousands |  | hundreds |  | tens | + | ones |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $+$ |  | $+$ |  |  |  |
| $=$ |  | $+$ |  | $+$ |  | $+$ | ones |
| $3,721=$ | thousands |  | hundreds |  | tens | $+$ |  |
|  |  | $+$ |  | + |  |  |  |
|  |  | + |  | $+$ |  | $+$ |  |
|  | thousands |  | hundreds |  | tens |  | ones |
| $6,118=$ | - | $+$ | - | + | - | $+$ |  |
| $=$ |  | $+$ |  | + |  | + |  |

1.18 Do you remember? Tell how many.

$$
\begin{aligned}
& 1 \text { day }= \\
& 1 \text { hour }= \\
& \text { hours } \\
& 60 \text { minutes }= \\
& 24 \text { hours }= \\
& \text { minutes } \\
& \text { hour }
\end{aligned}
$$

## Objectives

Read these objectives. When you have completed this section, you should be able to:
$\square$ Learn multiplication facts for 1 through 5.

- Write a family of facts.
- Read a dial clock.

Complete these activities.
2.1

Fill in the missing numbers on the number chart from 0 to 100.

| 0 |  | 2 |  | 4 | 5 |  | 7 |  | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 11 | 12 | 13 |  | 15 | 16 |  | 18 |  |
| 20 | 21 |  |  | 24 |  | 26 | 27 |  | 29 |
| 30 |  | 32 | 33 |  | 35 |  | 37 | 38 |  |
|  | 41 |  | 43 | 44 |  | 46 |  | 48 | 49 |
|  | 51 | 52 |  |  | 55 | 56 | 57 |  | 59 |
| 60 |  | 62 |  | 64 | 65 |  | 67 | 68 |  |
| 70 | 71 |  | 73 | 74 |  | 76 |  | 78 |  |
|  | 81 | 82 | 83 |  | 85 |  | 87 |  | 89 |
| 90 |  | 92 |  | 94 | 95 | 96 |  | 98 |  |
| 100 |  |  |  |  |  |  |  |  |  |

2.2 Count by 2s. Circle the number in the box.
2.3 Count by 5 s . Color the number box green.
2.4 Count by 10s. Write the numbers below.

Fractions may be part of a whole or part of a set.


## Complete these activities.

4.10 Draw a set of six balls. Circle four of the balls.
a. Express the balls that have been circled as a fraction. $\qquad$
b. Write the fraction in words. $\qquad$
4.11 Color the parts. Write the fraction in numbers and in words.
a. Color four parts.

b. Color three parts.


## MATH 402 MULTIPLYING WHOLE NUMBERS

1. Multiplication Facts, $\mathbf{6}$ to $\mathbf{1 0}$ ..... 3
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4. Equivalent Fractions ..... 30
Rounding and Estimating Whole Numbers to 100s |33
Self Test 4 |37
5. Application and Review ..... 39
Bar Graphs |45Self Test 5 |46Test |Pull-out at the back of the booklet
1.3 Write the problems in words. Remember hyphens!
a. $92+46=138$ $\qquad$
b. $63-37=26$ $\qquad$
c. $8 \times 5=40$ $\qquad$
1.4 Write these numbers in order from smallest to largest.
1,436
1,763
1,278
1,463
1,673
1,728

## Multiplication Facts

You can learn the multiplication facts for 6, 7, 8, 9, and 10 .

1.5 Write the facts for 6 s .
a. $1 \times 6=$ $\qquad$
b. $2 \times 6=$ $\qquad$
c. $3 \times 6=$ $\qquad$
d. $4 \times 6=$ $\qquad$
e. $5 \times 6=$ $\qquad$
f. $6 \times 6=$ $\qquad$
g. $7 \times 6=$ $\qquad$
h. $8 \times 6=$ $\qquad$
i. $9 \times 6=$ $\qquad$
j. $10 \times 6=$ $\qquad$

Start at 6 on the number line.
We say one 6 is equal to 6 .
Add 6 more on the number line.
We say two 6 s are equal to 12 .
Continue to add 6 more until you find the answer to 10 times 6.
Follow the same steps for $7,8,9$, and 10.
Write the numbers on the lines.

Try to learn the facts for 6 through 10 before you finish Math 402.
1.15 Add the coins. Write "how many" cents. Remember to write the cent sign ( $\Phi$ ).

a. $\qquad$
b. $\qquad$
c. $\qquad$
d.

d. $\qquad$
3.15 Find the products.
a.

$$
\begin{array}{r}
21 \\
\times \quad 4 \\
\hline
\end{array}
$$

$$
\begin{array}{r}
10 \\
\times \quad 3 \\
\hline
\end{array}
$$

$$
\begin{array}{r}
22 \\
\times \quad 4 \\
\hline
\end{array}
$$

$$
\begin{array}{r}
32 \\
\times \quad 3 \\
\hline
\end{array}
$$

$$
30
$$

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

b.

$$
\begin{array}{r}
11 \\
\times \quad 6 \\
\hline
\end{array}
$$

$$
\begin{array}{r}
12 \\
\times \quad 4 \\
\hline
\end{array}
$$

$$
\begin{array}{r}
10 \\
\times \quad 7 \\
\hline
\end{array}
$$

$$
\begin{array}{r}
13 \\
\times \quad 2 \\
\hline
\end{array}
$$

$$
\begin{array}{r}
23 \\
\times \quad 2 \\
\hline
\end{array}
$$

c. $\qquad$ $\begin{array}{r}21 \\ \times \quad 3 \\ \hline\end{array}$
44
$\begin{array}{r} \\ \times \quad 2 \\ \hline\end{array}$
$\begin{array}{r}14 \\ \times \quad 2 \\ \hline\end{array}$
22
$\begin{array}{r}\times \quad 3 \\ \hline\end{array}$
3.16 Complete the fact puzzles.
a.

| + | 3 | 7 | 6 | 8 |
| :--- | :--- | :--- | :--- | :--- |
| 2 |  |  |  |  |
| 5 |  |  |  |  |
| 0 |  |  |  |  |

b.

3.17 Expand these numbers. Show the value of each digit.
a. 5,832 $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$
b. 704 $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$
c. 36,075 $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$
d. 80,432 $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$

Review the material in this section to prepare for the Self Test. The Self Test will check your understanding of this section and will review the other sections. Any items you miss on this test will show you what areas you will need to restudy in order to prepare for the unit test.

## Bar Graphs

5.29 Mark and Melissa have an assignment to make a bar graph. They have selected 10 of their friends and have gathered some data (information) about them. Read the data that Mark and Melissa collected and post it to the graph. Use crayon or pencil for shading.

6 have brown eyes
5 have at least one sister
8 have some kind of pet

2 are left-handed
4 have at least one brother
7 have read a book in the last month

## MARK AND MELISSA'S FRIENDS

| Brown Eyes |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Left-handed |  |  |  |  |  |  |  |
| Sister |  |  |  |  |  |  |  |
| Brother |  |  |  |  |  |  |  |
| Pet |  |  |  |  |  |  |  |
| Book |  |  |  |  |  |  |  |

$J$
Before you take this last Self Test, you may want to do one or more of these self checks.

1. $\qquad$ Read the objectives. See if you can do them.
2. $\qquad$ Restudy the material related to any objectives that you cannot do.
3. $\qquad$ Use the SQ3R study procedure to review the material:
a. Scan the sections.
b. Question yourself.
c. Read to answer your questions.
d. Recite the answers to yourself.
e. Review areas you did not understand.
4. $\qquad$ Review all vocabulary, activities, and Self Tests, writing a correct answer for every wrong answer.

## MATH 403 <br> SEQUENCING AND ROUNDING

1. Rounding Numbers to $1,000 \mathrm{~s}$ ..... 3
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Self Test 3 |26
4. Equivalent Fractions ..... 28
Place Value to 100,000s ..... |31
Equations |34
Solid Shapes |35
Self Test 4 |37
5. Application and Review ..... 39
Line Graphs 144
Self Test 5 |46Test |Pull-out at the back of the booklet
3.4 Write the correct symbol. > , <
a. 72,458 is $\qquad$ than 76,458.
42,960 is $\qquad$ than 42,961 .
b. 56,765 is $\qquad$ than 46,765. 88,571 is $\qquad$ than 87,571.
c. 22,960 is $\qquad$ than 22,760.
15,000 is $\qquad$ than 13,000.
d. 61,200 is $\qquad$ than 71,200.
33,852 is $\qquad$ than 33,752.
e. 95,500 is $\qquad$ than 95,700.
47,900 is $\qquad$ than 43,900.

## Adding and Subtracting Fractions

## Complete these activities.

3.5 Complete the problem in addition of fractions for each illustration.
a.



$$
+\frac{}{4}
$$

a. $\qquad$
b.


$$
\begin{array}{r}
\overline{6} \\
+\quad \overline{6}
\end{array}
$$

b.
3.6 Complete the problem in subtraction of fractions for each illustration.
a.


$\qquad$
a. $\qquad$
b.

b.

## Adding and Subtracting to 10,000s

We carry and borrow numbers to the ten thousands using the same pattern that we follow in carrying and borrowing to hundreds, tens, and thousands.


## Complete this activity.

3.11 Complete these problems in addition and subtraction to ten thousands.
a. 53,694
36,759
19,463

| $+\quad 27,836$ |
| :--- |

36,865
$+\quad 2$
$\begin{array}{r}+27,689 \\ \hline\end{array}$
47,382
b.
86,453
97,326

- 68,954
- 38,458
- 15,693

We have learned to check addition problems by adding down and adding up.
The two sums should be the same.
We have learned to check subtraction problems by adding the difference to the subtrahend.
The answer should be the same as the minuend.

| $\mathbf{8 4 5}$ |  |
| ---: | ---: |
| 456 |  |
| $+\quad 389$ |  |
| $\mathbf{8 4 5}$ | $\mathbf{9 3 2}$ |
| $+\quad 648$ |  |
| 932 |  |

5.4 What is the answer when you multiply by zero? $\qquad$
5.5 What is the product of 7 and 6 ? $\qquad$
5.6 If 24 is the multiplicand and 5 is the multiplier, what is the product?
$\qquad$
5.7 Sue and Jennifer were selling magazines. They collected \$10.25 the first day, $\$ 14.35$ the second day, $\$ 15.45$ the third day, and $\$ 9.60$ the fourth day.
a. How much money did they collect in the four days? $\qquad$
b. Do we call first, second, third, and fourth cardinal or ordinal numbers?
$\qquad$
c. If Sue and Jennifer had set a goal of \$60.00, how much more money did they need from their magazines? $\qquad$
5.8 Jeremy wanted to play a game on the computer, but he had to finish his homework first. If it took him 10 minutes to finish each page and he had 5 pages to complete, how long would it be before he could play his game?


ONE WEEK TEMPERATURE


Before you take this last Self Test, you may want to do one or more of these self checks.

1. $\qquad$ Read the objectives. See if you can do them.
2. 
3. ___ Restudy the material related to any objectives that you cannot do.
$\qquad$ Use the SQ3R study procedure to review the material:
a. Scan the sections.
b. Question yourself.
c. Read to answer your questions.
d. Recite the answers to yourself.
e. Review areas you did not understand.
4. $\qquad$ Review all vocabulary, activities, and Self Tests, writing a correct answer for every wrong answer.
5.010 Round the number ...
a. 35 to the nearest 10 . $\qquad$
b. 576 to the nearest hundred. $\qquad$
5.011 a. Add.
b. Estimate the answer.

763
$\begin{array}{r}+231 \\ \hline\end{array}$
$\qquad$
5.012N $+32+78=153$
$N=$ $\qquad$

Read the graph and answer the questions.
ANN'S COIN COLLECTION

5.013 a. The graph about Ann's coin collection is an example of a $\qquad$ graph.
b. List the number of coins in the collection.

Kennedy Half-Dollars
Roosevelt Dimes $\qquad$
Lincoln Pennies

Teacher check:

## MATH 404 <br> LINES AND SHAPES

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2. Adding, Subtracting, Multiplying ..... 11
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Self Test 3 |29
4. Equivalent Fractions ..... 31
Sequencing |33
Missing Number Problems |35
Self Test 4 ..... 39
5. Application and Review ..... 42
Self Test 5 ..... |48Test |Pullout at the back of the booklet

## 1. PLANE AND SOLID SHAPES

## Objectives

Read these objectives. When you have completed this section, you should be able to:

- Identify plane and solid shapes.
$\square$ Measure the dimensions of plane and solid shapes.
1.1 Match the figure to its name.
a. $\qquad$

b. $\qquad$


1. oval
2. hexagon
3. pentagon
4. square
5. octagon
6. triangle
7. circle
8. diamond
9. rectangle

Complete these activities. You will need a ruler.


Figure A


Figure B
1.11 Write the dimensions of Figure A. length $\qquad$ width $\qquad$ height $\qquad$
1.12 Measure Figure B in inches. Write the dimensions to the nearest one-fourth inch. length $\qquad$ width $\qquad$ height $\qquad$

The sides of a solid are called faces.
1.13 Look carefully.

How many faces do you count for Figure A? $\qquad$ Figure B? $\qquad$

A line segment is a part of a line that has a beginning and an end.
We mark the beginning and end with end points.

3.3 Put dots or periods to mark a 3-inch line segment on the line for activity 3.1. Label the dots as end points.

## End Points, Rays, and Angles

The end points show the beginning and end of the line segment.
3.4 Draw a line about 5 inches long. Show a 4-inch line segment on the line. Label all parts of your drawing.
$\square$
Some lines have just one end point.
A ray is a line that has just one end point. A ray goes on forever in one direction.
We use arrows to show that a ray continues in one direction.
A ray is expressed this way. The end point and arrow define it as a ray.

3.5 Draw a line about 2 inches long and put an end point at the beginning of what you have drawn. Put an arrow where you stopped drawing to show the line has no end.
5.27 Answer the questions about the figure below.

a. Is it a plane shape or solid shape? $\qquad$
b. Name the shape. $\qquad$
c. How many line segments are there? $\qquad$
d. How many end points? $\qquad$
e. How many angles? $\qquad$
5.28 Doris bought 3 pencils at $26 \Phi$ each, 2 erasers at $15 \Phi$ each, and 1 notebook with paper for $\$ 2.64$. How much did Doris spend altogether?
$\qquad$
If Doris gave the clerk a five-dollar bill, how much change would she receive? $\qquad$
Express the change in coins.

5.29 Complete the multiplication puzzles.
a.

| $\times$ | 3 | 6 | 8 | 7 |
| :---: | :---: | :---: | :---: | :---: |
| 2 |  |  |  |  |
| 5 |  |  |  |  |
| 4 |  |  |  |  |

b.


## MATH 405 <br> DIVISION AND MEASUREMENTS

1. Division, Addition,Subtraction, Multiplication3
Self Test 1 | 10
2. Units of Measure ..... 12
Division Facts |16
Self Test 2 |18
3. Calendar ..... 20
Perimeter and Area |22Adding and Subtracting Fractions |26
Self Test 3 ..... |27
4. Missing Number Problems ..... 29
Division Signs ..... |32
Roman Numerals ..... |33
Self Test 4 ..... |37
5. Application and Review ..... 39
Picture Graphs |44
Self Test 5 |46
Test |Pull-out at the back of the booklet
2.2 What unit of measurement would you use for ...
a. a book? $\qquad$
b. the land around your house? $\qquad$
c. the distance from one city to another? $\qquad$
d. a fork? $\qquad$
e. a length of cloth? $\qquad$
f. your height? $\qquad$
g. a board to build a tree house? $\qquad$

Capacity is a measurement of the amount an object or container can hold.
Measurements of liquid capacity are made in pints, quarts, and gallons. Measurements of dry capacity are made in ounces and pounds or pints, quarts, pecks, and bushels.

## Liquid

$$
\begin{aligned}
1 \text { pint } & =16 \text { ounces } \\
1 \text { pint } & =2 \text { cups } \\
1 \text { quart } & =2 \text { pints } \\
1 \text { gallon } & =4 \text { quarts }
\end{aligned}
$$

| Dry |  |
| ---: | :--- |
| 16 ounces | $=1$ pound |
|  | or |
| 2 pints | $=1$ quart |
| 8 quarts | $=1$ peck |
| 4 pecks | $=1$ bushel |



You will need a cup, quart, and gallon containers for liquids for this activity.
Bleach bottles, milk containers, cans from canned foods are good examples. Also, an empty box that contained a dry measurement, such as laundry detergent, should be available. Examples for pecks and bushels may be more difficult to obtain.

## Division Facts

2.8 Write the correct answer.

| a. | $4 \div 2=$ | because | $2 \times$ | $=4$. |
| :---: | :---: | :---: | :---: | :---: |
| b. | $6 \div 3=$ | because | $3 \times$ | $=6$. |
| C. | $8 \div 4=$ | because | $4 \times$ | $=8$. |
| d. | $10 \div 2=$ | because | $2 \times$ | $=10$. |
| e. | $9 \div 3=$ | because | $3 \times$ | $=9$ |
| f. | $12 \div 4=$ | because | $4 \times$ | $=12$ |
| g. | $12 \div 6=$ | because | $6 \times$ | $=12$ |
| h . | $15 \div 3=$ | because | $3 \times$ | $=1$ |
| i. | $18 \div 9=$ | because | $9 \times$ | $=18$ |
| j. | $16 \div 4=$ | because | $4 \times$ | $=16$ |
| k. | $20 \div 5=$ | because | $5 \times$ | $=20$. |
| 1. | $21 \div 3=$ | because | $3 \times$ | $=21$. |
| m. | $24 \div 3=$ | because | $3 \times$ | $=24$. |
| n . | $24 \div 6=$ | because | $6 \times$ | $=24$ |
| O. | $25 \div 5=$ | because | $5 \times$ | $=25$. |
| p. | $27 \div 3=$ | because | $3 \times$ | $=27$. |
| q. | $28 \div 4=$ | because | $4 \times$ | $=28$. |
| $r$. | $36 \div 9=$ | because | $9 \times$ | $=36$. |
| S. | $42 \div 7=$ | because | $7 \times$ | $=42$. |
| t. | $48 \div 6=$ | because | $6 \times$ | $=48$. |
| u. | $54 \div 9=$ | because | $9 \times$ | $=54$. |
| V. | $56 \div 8=$ | because | $8 \times$ | $=56$. |
| W. | $63 \div 7=$ | because | $7 \times$ | $=63$. |
| X. | $64 \div 8=$ | because | $8 \times$ | $=64$. |
| y. | $72 \div 9=$ | because | $9 \times$ | $=72$. |

## 3. CALENDAR

## Objectives

Read these objectives. When you have completed this section, you should be able to:

- Read a calendar.
- Use formulas to find the perimeter and area of a rectangle.
- Add and subtract fractions.


You will need a current calendar.
3.1 Use a current calendar and the calendar on this page to answer the questions.
a. How many months in a year?
b. How many weeks in a year?
3.4 Multiply.
a.


57
402
315
740

$\begin{array}{r} \\ \times \quad 5 \\ \hline\end{array}$
$\begin{array}{r}7 \\ \times \quad 3 \\ \hline\end{array}$
b.


5,164
3,827
2,635

$\begin{array}{r}7 \\ \times \quad 7 \\ \hline\end{array}$

## Perimeter and Area



You will need unlined paper and a ruler.

Perimeter is the distance around the outside of a plane shape. It is expressed in linear units.

Area is the measurement of a plane surface. It is expressed in square units.

Put your finger at $A$ on the rectangle. Move your finger from $A$ to $B, B$ to $C$, $C$ to $D$, and $D$ to $A$. You have moved your finger around the perimeter of the rectangle.


Now cover the rectangle with your hand. You have covered the surface or area of the rectangle.

We measure perimeter in linear units. This is a linear inch. $\qquad$ Use your ruler to measure the linear inch.

We measure surface in square units. This is a square inch. $\qquad$ Shade the square inch.

In the rectangular polygon in the example, each small square represents a square inch.
5.34 $\qquad$ $24 \div 3=$ $\qquad$ $14 \div 2=$ $\qquad$
$20 \div 5=$ $\qquad$ $42 \div 7=$ $\qquad$ $36 \div 9=$ $\qquad$
5.35 Write this fraction in words.
$\frac{5}{8}$ $\qquad$
5.36 How many nickels in a quarter? $\qquad$ a dollar? $\qquad$
5.37 Mary and her mother were buying material for a new dress. The pattern called for 3 yards of material. How many inches would that be? $\qquad$

## Picture Graphs

5.38 Dan and Eve have an assignment to make a picture graph. They have kept a record of their friends' favorite fruits. Read the data that Ted and Lisa have collected. Draw pictures of each type of fruit on the graph to show the data. Each drawing (picture of fruit) represents one student.

| 3 students liked grapes | 3 students liked apples |
| :--- | :--- |
| 8 students liked bananas | 5 students liked watermelons |
| 6 students liked oranges | 7 students like strawberries |

## FAVORITE FRUIT

Grapes

Apples

## Bananas

Watermelon

Oranges

## Strawberries



## MATH 406 <br> DIVISION, FACTORS, AND FRACTIONS

1. Prime and Composite Numbers............. 3
Factors and Multiples 14
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2. Multiplication 12
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Proper and Improper Fractions |18
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3. Multiplication Facts for 11 and $12 \ldots 22$
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4. Measurements

Equivalent Fractions |37
Self Test 4 |39
5. Application and Review

Self Test 5 |48
Test |Pullout at the back of the booklet
1.4 Write all of the digits except 0 . $\qquad$
1.5 Multiply 2 by each one of the digits and write your answers.
$\qquad$ , $\qquad$ , $\qquad$ , $\qquad$ , $\qquad$ , $\qquad$ , $\qquad$ , $\qquad$ ,

The numbers you have written are called multiples of 2 .
Multiples are numbers that result when factors are multiplied together.
1.6 Multiply 3 by each one of the digits.
$\qquad$ , $\qquad$ , $\qquad$ , $\qquad$ , $\qquad$ , $\qquad$ , $\qquad$ , $\qquad$
$\qquad$
The numbers you have written are called multiples of 3 .
1.7 Write the factors of 6 . $\qquad$
1.8 Write nine multiples of 6 . $\qquad$
1.9 Write the factors of 8 . $\qquad$
1.10 Write nine multiples of 8 . $\qquad$
1.11 Are 6 and 8 prime or composite numbers? $\qquad$

## Division

Multiplication and division work together. Multiplication facts and division facts belong to the same family of facts.

$\qquad$


## You will need objects for counting.

### 1.12 Write the family of facts for $3,5,15$.

$\qquad$
3.13 Divide each set of numbers into two groups that have the same sum. Write them in ...

b. the diamonds.
$2,3,4,6,11$

C. the rectangles.

$$
1,2,5,7,8,9
$$



Review the material in this section to prepare for the Self Test. The Self Test will check your understanding of this section and will review the other sections. Any items you miss on this test will show you what areas you will need to restudy in order to prepare for the unit test.
d. Jane weighed 73 pounds and 3 ounces last year. She gained 13 ounces this year. How many pounds does she weigh now? $\qquad$
e. Corey bought 16 pints of cream for the party. How many quarts is that equal to? $\qquad$

f. Kenneth has a glass that holds 1 pint and 8 ounces. How many ounces does the glass hold? $\qquad$
4.3 In each pair, circle the measurement that is greater.

| ounce pound | ton pound | yard inch |
| :--- | ---: | :--- |
| quart gallon | peck bushel | pint ounce |

4.4 Write "how many," and then show the value.

| thousands ones hundreds tens ones |  |
| :---: | :---: |

a. $35,265=$ $\qquad$ $+$ $+$ $+$ $\qquad$ $+$
$\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$
b. $408,332=$ $+$ $+$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $=$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$
$\qquad$ $+$ $\qquad$
c. 9,751 $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $=$ $\qquad$ $+$ $\qquad$
$\qquad$
$\qquad$ $+$ $\qquad$
$\qquad$

## 4. MEASUREMENTS

## Objectives

Read these objectives. When you have completed this section, you should be able to:

- Review measurements.
$\square$ Understand equivalent fractions.

11
Complete these activities.
4.1 Tell how many.
1 yard $=$ $\qquad$ inches
3 feet $=$ $\qquad$ yard

1 ton = $\qquad$ pounds

12 inches $=$ $\qquad$ foot

1 pint $=$ $\qquad$ ounces

1 gallon = $\qquad$ quarts

1 bushel = $\qquad$ pecks

1 quart $=$ $\qquad$ pints

1 pound $=$ $\qquad$ ounces

36 inches = $\qquad$ yard
4.2 Answer the questions.
a. Jeff grew three inches last year.

Did he grow at least one foot? $\qquad$ _
b. Beth's parents bought her a doll house that was one yard long. How many inches was that? $\qquad$
c. Richard bought 6 feet of string and 32 inches of rope. Together, how many inches of string and rope did he buy? $\qquad$


## MATH 407 MULTIPLICATION AND FRACTIONS

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1.06 Write the shaded portion of each of the following as:
1) an improper fraction; and
2) as a whole number or mixed number.

3) $\qquad$ 2) $\qquad$

4) $\qquad$ 2) $\qquad$
1.07 Use division to change these improper fractions to whole numbers or mixed numbers.
a. $\frac{8}{5}=$ $\qquad$ b. $\frac{14}{7}=$ $\qquad$
1.08 Complete the number sentences. Circle the correct sign .
a. $2+5+8(>,<) 3 \times 6$
b. $18-3(>,<) 3+7+6$
c. $48 \div 6(=, \neq) 2 \times 3$
d. $75-3(=, \neq) 9 \times 8$
1.09 Solve for the missing number.
a. $N \div 3=9$
$N=$ $\qquad$
b. $N-6=7$
$N=$ $\qquad$
4.5 Find the missing factors in the multiplication charts.
a.

| $\times$ |  |  | 6 |
| :---: | :---: | :---: | :---: |
|  | 24 | 21 | 18 |
|  | 32 | 28 | 24 |
| 1 | 8 | 7 | 6 |

b.

| $\times$ |  | 3 |  |
| :---: | :---: | :---: | :---: |
|  | 8 | 6 | 22 |
|  | 40 | 30 | 110 |
| 9 | 36 | 27 | 99 |

4.6 Add or subtract. Simplify or reduce your answers to lowest terms.
a. $\begin{array}{r}\frac{1}{5} \\ +\quad \frac{4}{5} \\ \hline\end{array}$
b. $\quad \frac{9}{16}$

- $\frac{5}{16}$
$\frac{11}{24}$
$+\frac{5}{24}$
$-\frac{4}{18}$
C. $\quad \frac{7}{11}$
$+\frac{4}{11}$
$\frac{2}{3}$
$-\frac{2}{3}$
$\frac{9}{15}$
$\square$
$+\frac{7}{15}$
d. $\quad \frac{12}{21}$
$\begin{array}{r}\frac{5}{19} \\ +\quad \frac{14}{19} \\ \hline\end{array}$
$-\frac{9}{21}$


## 

21 $\qquad$
$\frac{5}{16}$
$-\frac{1}{16}$
5.2 Match these solid shapes.
a. $\qquad$


1. cylinder
b. $\qquad$

2. cube
3. sphere
4. pyramid
5. cone
5.3 Use these numbers to complete the activities.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |  |  |  |

a. List 6 prime numbers. $\qquad$
b. List 6 composite numbers. $\qquad$
c. List 6 even numbers. $\qquad$
d. List 6 odd numbers. $\qquad$
e. List the factors of 24 . $\qquad$
f. List the smallest and largest multiple of 4. $\qquad$
g. Write an improper fraction. $\qquad$
h. Reduce your improper fraction to lowest terms. $\qquad$
i. Write a proper fraction in its lowest terms. $\qquad$
j. Using multiplication, write an equivalent fraction to your proper fraction.
k. Write a mixed number. $\qquad$
I. Write a number that is $>5$. $\qquad$ $<5$. $\qquad$
$m$. Write a number that is $=(4 \times 3)+6$. $\qquad$
h. Plan two schedules for three weeks so that Jack and his sisters would spend an equal amount of time watering.

Possible Watering Schedule 1


Possible Watering Schedule 2

|  | SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Week 1 |  |  |  |  |  |  |  |
| Week 2 |  |  |  |  |  |  |  |
| Week 3 |  |  |  |  |  |  |  |

i. Jack needed to plan some time for weeding. He wanted to weed every third day starting on Saturday. Plan a sequence of days for weeding covering the next two weeks.

Weeding Schedule

|  | SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |
| Week 1 |  |  |  |  |  |  |  |
| Week 2 |  |  |  |  |  |  |  |

## MATH 408 <br> WHOLE NUMBERS AND FRACTIONS

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Test |Pullout at the back of the booklet

## Complete these activities.

2.6 Complete the missing number problems.
a. $N=16-(3+2)$
b. $N=80+(6 \div 2)$
$N=16-$ $\qquad$
$\mathrm{N}=$ $\qquad$
$\mathrm{N}=80+$ $\qquad$
$N=$ $\qquad$
c. $N=72 \div(4+5)$
$\mathrm{N}=$ $\qquad$ $\div$ $\qquad$
d. $N=6 \times(12-4)$
$\mathrm{N}=$ $\qquad$ $\times$
$\mathrm{N}=$ $\qquad$ $\mathrm{N}=$ $\qquad$
$\qquad$
2.7 Solve these problems by completing each step of the equations.
a. George was reading a book for a book report due on Friday. The book was 60 pages long. He read 15 pages on Monday, 10 pages on Tuesday, and 21 pages on Wednesday. Find the number of pages he had left to read on Thursday.
$\mathrm{N}=$ $\qquad$ $-(15+10+21)$
$\mathrm{N}=$ $\qquad$ - $\qquad$
$N=$ $\qquad$
b. Jim bought 2 packages of candy at the store for $\$ 1.20$ each. Find the amount of change he would receive from $\$ 3.00$.
$\mathrm{N}=$ $\qquad$ - ( $2 \times \$ 1.20$ )
$\mathrm{N}=$ $\qquad$ - $\qquad$
$\mathrm{N}=$ $\qquad$
c. Two school newspapers were sold one day at school. Three were sold the second day and four the third day. If $\$ 6.75$ was collected, how much did each paper cost?
$N=\$ 6.75 \div($ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ )
$N=\$ 6.75 \div$ $\qquad$
$N=$ $\qquad$

## Polygons

3.4 Polygons are closed, plane figures with three or more sides. A quadrilateral is a polygon with four sides. These figures are quadrilaterals.

a. In each figure, count the number of ..
sides $\qquad$
angles $\qquad$
end points $\qquad$

b. Is your count the same for each figure? $\qquad$

Squares and rectangles are special kinds of quadrilaterals. They each have four right angles.

Squares have four equal sides. Rectangles have opposite sides equal. Diagonals of squares and rectangles are always equal.


## Complete the following activities.

4.2 a. Using your ruler, measure as close as you can the number of inches that are equal to 10 centimeters. $\qquad$
b. Mark the location of 1 inch, 2 inches, and 3 inches on the line segment. Which is larger, a centimeter or an inch?
$\qquad$

## CHART OF PREFIXES

| smallest | milli- | a unit contains 1,000 |
| :---: | :---: | :---: |
| centi- | a unit contains 100 |  |
| meter, liter, gram | a unit contains 10 |  |
| deca- | unit |  |
| hecto- | contains 10 units |  |
| largest | kilo- | contains 100 units |

4.3 Using the chart of prefixes, answer the following questions.
a. A milliliter is $(>,<)$ a liter.
b. A decaliter is $(>,<)$ a liter.
c. A centimeter is $(>,<)$ a meter.
d. A kilometer is $(>,<)$ a meter.
e. A milligram is $(>,<)$ a gram.
f. A kilogram is $(>,<)$ a gram.
g. The three basic metric units are $\qquad$ , $\qquad$ and $\qquad$ .
4.14 Write the time shown on these digital clocks.
a.

$\qquad$
b.

C.

$$
E \cdot=1
$$

$\qquad$
d.
$\qquad$

$\qquad$
4.15 Complete these missing number problems. The numbers in red are the sums. The numbers in black are the addends. Three numbers are added vertically or horizontally to find the sum.
a.

| + |  | 22 | 31 |
| :---: | :---: | :---: | :---: |
| 34 | 8 |  | 14 |
| 47 |  |  |  |
|  | 5 | 4 | 8 |

b.

| + |  | 188 | 145 |
| :---: | :---: | :---: | :---: |
|  | 84 |  |  |
| 164 |  | 63 | 72 |
|  | 76 | 91 | 15 |

Review the material in this section to prepare for the Self Test. The Self Test will check your understanding of this section and will review the other sections. Any items you miss on this test will show you what areas you will need to restudy in order to prepare for the unit test.

Complete these activities (each answer, 1 point).
5.08 Write in Arabic numerals.

LXXIX $\qquad$ MDXX $\qquad$
5.09 Circle the correct symbol. Prove your answer using cross multiplication.
a. $\frac{2}{3}(=, \neq) \frac{7}{8}$
b. $\frac{4}{5}(=, \neq) \frac{16}{20}$
C. $\frac{1}{2}(=, \neq) \frac{5}{8}$
d. $\frac{3}{4}(=, \neq) \frac{7}{9}$
5.010 Read the graph and answer the questions.

## THE FRIENDS' LINCOLN PENNY COLLECTION


a. What kind of graph is this?
b. How many people combined their pennies for the coin collection?
c. If there is a total of 100 pennies in the collection, how many belonged to James?

# MATH 409 DECIMALS AND FRACTIONS 

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## Numbers on a Grid Pattern

We can learn to locate points on a grid pattern.
The center of this grid pattern is


The numbers represent miles. The arrows show the directions. Points are always located along the horizontal line (east-west) first, and the vertical line (north-south) second.


## 2. FRACTIONS

## Objectives

Read these objectives. When you have completed this section, you should be able to:
Review fractions.
$\square$ Practice division of whole numbers.

- Find an average.

Fractions are numbers that stand for parts of things.
A fraction may stand for part of a single object or for part of a set.
$\frac{1}{2}$ of an object

$\frac{1}{4}$ of an object

## ?


$\frac{1}{3}$ of a set

## Complete this activity.

2.1 Use the denominators of the fractions (A-J) to match to boxes (1-10) and sets (11-20). Color the numerator for the boxes. Circle the numerator for the sets.


## Sensible Answers

Calculators are valuable tools in solving mathematics problems. You may already know how to use a calculator. Calculators give us the correct answer only when the information we enter is correct.

Estimation helps us decide whether we have a sensible answer. We should always estimate our answers at the same time we are
 solving a problem. We should decide whether our answer is sensible.

Rounding makes it easier to estimate answers.


## Complete these activities.

4.10 Jim worked this problem. $\quad 20+15=\underline{5}$
a. Is Jim's answer 5 a sensible answer? $\qquad$
b. What did Jim do instead of adding? $\qquad$
4.11 Jane completed this problem. $5 \times 9=\underline{14}$
a. Is Jane's answer 14 a sensible answer? $\qquad$
b. What did Jane do instead of multiplying? $\qquad$
4.12 Use rounding to show whether these answers are sensible. Round to the nearest 10,100, or 1,000. Decide if the answer is sensible (write yes or no). Then, find the actual answer.

Problem Rounding | Sensible? |
| :---: |
| (yes or no) Actual answer |

a. $57+29=86$ $\qquad$
$\qquad$
b. $85+85=7,225$
c. $486+574=1,430$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
d. $785-370=415$
e. $6,232+2,953=3,279$
f. $9,883-6,324=16,207$ $\qquad$
$\qquad$
$\qquad$
f. $9,883-6,324=16,207 \quad \square$

## MATH 410 <br> ESTIMATION, CHARTS, AND GRAPHS

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## Estimation and Prediction

You have been practicing estimation with numbers. This workbook will teach you estimation with objects. You will estimate your problem, and then collect data about it. Finally, you will place the information on a chart.

Estimation is an opinion of the amount, value, or worth of something.
Data is a list of facts from which a conclusion may be drawn.
A chart is an arrangement of data in a logical order.

In Activity 1.1, you will discover how closely you can:

1) estimate the number of objects in each of four given groups, and
2) estimate the average number of objects in four groups.

Your teacher will place a group of objects in each of four bags. The bags will be labeled Group 1, Group 2, Group 3, and Group 4. Each bag will contain a different number of objects. It may be an assortment of colors. You may hold the bag in any way, but do not look inside.

1.10 Chart the data. Enter the information you have gathered on the chart.

| DISTRIBUTION OF COLORS |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | RED | YELLOW | GREEN | PURPLE | TOTAL |
| PREDICTION OF RANDOM SAMPLE |  |  |  |  |  |
| DATA FROM RANDOM SAMPLE |  |  |  |  |  |
| DIFFERENCE |  |  |  |  |  |
| COUNT OF OBJECTS FROM CONTAINER |  |  |  |  |  |

1.11 Review Activities 1.6-1.10. Answer the questions.
a. Arrange the colors in order from largest to smallest ...
from your prediction.
from the random sample. $\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
from the actual count. $\qquad$
$\qquad$
$\qquad$
b. Was your prediction or the random sample closer to the actual count?
c. Write a sentence telling whether you think a random sample is a good way to find out information about a large quantity.
$\qquad$
$\qquad$
$\qquad$
$\qquad$

Save the data from Section 1 to use in Section 2. the unit test.

## 2. GRAPHS

## Objectives

Read these objectives. When you have completed this section, you should be able to:

- Read bar, line, picture, and circle graphs.
- Display data on bar, line, picture, and circle graphs.


## Bar, Line, Picture, and Circle Graphs

A graph is a special kind of chart.
The most common graphs are bar, line, picture, and circle.


Bar graph


Picture graph


Line graph


Circle graph
d. circle graph


## Word Problems

5.13 James, George, and Mandy were planning a party.

They went to three stores to purchase the food and favors.
They spent $\$ 8.59$ at the first store, $\$ 6.32$ at the second store, and
$\$ 5.31$ at the third store. They wanted to share the cost equally.
How much money did each one pay?

5.14 Mark was helping his father put a new floor down in the kitchen.

The kitchen measured 8 feet by 12 feet.
If each tile was 1 foot square, how many tiles did they need?
5.15 Four youth groups decided to collect aluminum cans to raise money for camp. The first group collected 483 cans, the second group collected 316 cans, the third group collected 432 cans, and the fourth group collected 220 cans. Round the numbers.
About how many cans did the groups collect altogether? $\qquad$
5.16 There were 24 people invited to a pizza party.

One-fourth of the people wanted sausage and olives.
Three-fourths of the people wanted plain cheese.
Sam ordered 12 sausage and olive pizzas and 12 plain cheese pizzas.
Did Sam make the correct order?
What do you think he should have ordered? $\qquad$
5.17 Betty and Loren were visiting a museum of science.

The Roman numerals on the building showed MCMXXIV.
Convert the Roman numerals to Arabic numerals.
5.18 Karen's mother asked her what she would like for supper that night.

Karen answered, "Pizza, spaghetti, hamburgers, pancakes, or waffles."
Her mother said, "You may have your third choice."
What did Karen have for supper?

