MATHEMATICS 406

CONTENTS

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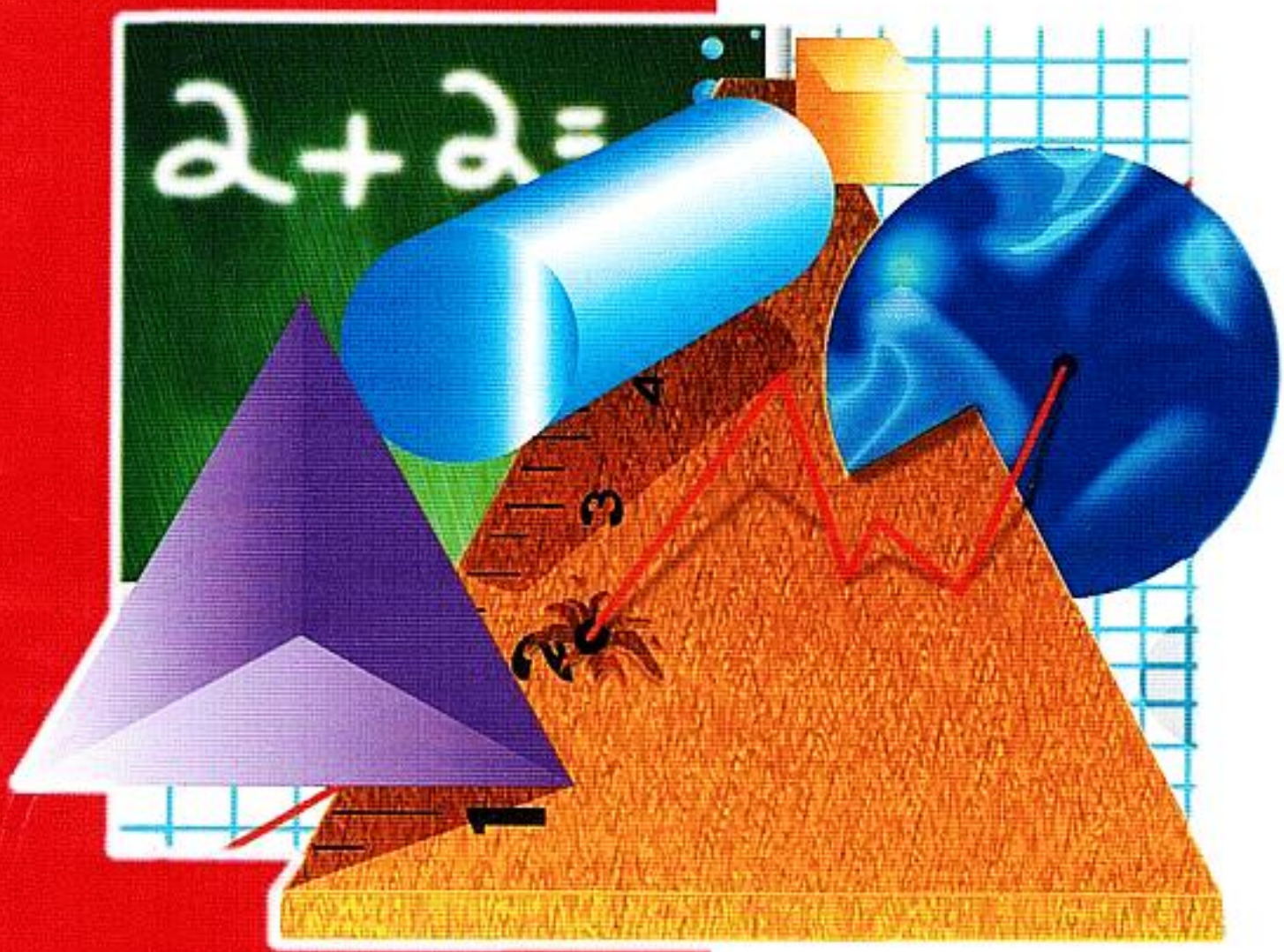


MATH

I. PART ONE

Learn Box

I can learn about prime and composite numbers.
I can learn about factors and multiples.
I can learn division by a 1-digit number.

A **prime number** can be divided only by 1 and itself.

2 can be divided only by 1 and 2.

3 can be divided only by 1 and 3.

5 can be divided only by 1 and 5.

A **composite number** can be divided by 1, itself, and other numbers.

4 can be divided by 1, 2, 4.

6 can be divided by 1, 2, 3, 6.

8 can be divided by 1, 2, 4, 8.

1.1 What numbers can these composite numbers be divided by?
List all numbers.

a. 9 _____

b. 10 _____

c. 12 _____

Factors are all the numbers that when multiplied produce a given number.

1.2 The factors of ...

a. 9 are 1, 3, 9. Was this your answer to 1.1(a).? _____

b. 10 are 1, 2, 5, 10. Was this your answer to 1.1(b)? _____

c. 12 are 1, 2, 3, 4, 6, 12. Was this your answer to 1.1(c)? _____

A **composite** number can be divided by all of its factors.

1.3 List the factors of the numbers. Tell the number of factors. Write prime or composite.

		Factors	Number	Prime or Composite
a.	13			
b.	14			
c.	15			
d.	16			
e.	17			
f.	18			

1.4 Write all of the digits except 0. _____

1.5 Multiply 2 by each one of the digits and write your answer.

_____, _____, _____, _____, _____, _____, _____, _____, _____

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.

_____, _____, _____, _____, _____, _____, _____, _____, _____

The numbers you have written are called multiples of 3.

1.7 Write the factors of 6. _____

1.8 Write nine multiples of 6. _____

1.9 Write the factors of 8. _____

1.10 Write nine multiples of 8. _____

1.11 Are 6 and 8 prime or composite numbers? _____

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

You will need
objects for counting

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

_____ _____ _____ _____

Let's take a closer look at how we divide 15 by 5.

In division, we start with the first digit on the left in the dividend and then move to the right.

$$\begin{array}{r} 3 \\ 5\overline{)15} \end{array}$$

We begin by trying to divide 5 into 1.
1 is too small to be a multiple of 5
and so we try 15.
15 is a multiple of 5.
5 divides into 15 three times.

1.13 Divide 11 objects into sets of 4.

a. How many sets of 4 could you make? _____

b. How many objects were left over? _____

$$\begin{array}{r} 2\ \text{R}\,3 \\ 4\overline{)11} \\ \underline{8} \\ 3 \end{array}$$

Starting from the left, we look at the first number in the dividend.
1 is too small to be a multiple of 4
and so we try 11.
The largest multiple of 4 less than 11 is 8 (2 x 4 = 8). We say that 4 divides into 11 two times.
The next step is to multiply 2 x 4 and put the answer below the 11.
Subtracting 8 from 11, we find that we have a remainder of 3.

1.14 Divide 18 objects into sets of 5.

a. How many sets of 5 could you make? _____

b. How many objects were left over? _____

$$\begin{array}{r} 3 \text{ R}3 \\ 5\overline{)18} \\ \underline{15} \\ 3 \end{array}$$

Starting from the left, we look at the first number in the dividend.
1 is too small to be a multiple of 5 and so we try 18.
The largest multiple of 5 less than 18 is 15 (3 x 5 =15). We say that 5 divides into 18 three times.
The next step is to multiply 3 x 5 = 15 and put the answer below the 18.
Subtracting the 15 from 18, we have a remainder of 3.

1.15 Divide 26 objects into sets of 6.

a. How many sets of 6 could you make? _____

b. How many objects were left over? _____

$$\begin{array}{r} 4 \text{ R}2 \\ 6\overline{)26} \\ \underline{24} \\ 2 \end{array}$$

Follow these steps for division

1. Divide (from left to right)
2. Multiply
3. Subtract

It is very important to know the multiples of digits to solve division problems.

1.16 Follow the steps for division.

a.

$2\overline{)19}$ $6\overline{)27}$ $2\overline{)15}$

b.

$4\overline{)33}$ $5\overline{)42}$ $3\overline{)26}$

c.

$3\overline{)25}$ $4\overline{)26}$ $4\overline{)35}$

d.

$9\overline{)37}$ $6\overline{)56}$ $8\overline{)43}$

1.17 Fill in the blanks with >, <, or =.

a. $2 + 5$ _____ $14 \div 2$ $83 + 6$ _____ 9×9

b. $67 - 3$ _____ $62 + 5$ $34 - 4$ _____ 3×10

c. 8×0 _____ 7×0 $19 - 3$ _____ $12 + 2$

d. 6×2 _____ $8 + 5$ 6×9 _____ 9×4

e. $21 - 3$ _____ 9×2 $9 - 6$ _____ $24 \div 8$

1.18 Write the money in digits. Solve the problem.

2 quarters	$	3 half dollars	$
3 nickels		3 quarters	
8 pennies	+_____	4 pennies	+_____
	$		$

1.19 Circle the numbers that are in the

a.	tens' place	3,461	104,692	15,901
b.	thousands' place	2,862	76,305	168,294
c.	ten thousands' place	63,297	41,346	503,247

1.20 Add 7 to each number.

8	_____	9	_____	14	_____	36	_____	58	_____

1.21 Subtract 6 from each number.

9	_____	15	_____	48	_____	62	_____	81	_____

1.22 Multiply each number by 8.

2	_____	7	_____	5	_____	0	_____	9	_____

1.23 Write the number words.

a. 5,346 _____

b. 84,040 _____

c. 307,632 _____

1.24 Arrange in number order from smallest to largest.

78,354	75,854	705,845	780,475	750,450	8,758
_____	_____	_____	_____	_____	_____

SELF TEST 1

(each numbered problem 1.01 to 1.08, 1 point)

1.01 Write the family of facts for 4, 6, and 24.

_____ _____

_____ _____

1.02 Write the prime numbers between 0 and 10. _____

1.03 Write the composite numbers between 11 and 21.

_____

1.04 What are the factors of 16? _____

1.05 What are the factors of 21? _____

1.06 List the first five multiples of 4. _____

1.07 List the first five multiples of 9. _____

1.08 Multiples are from the (addition, subtraction, multiplication) family of facts. _____

1.09 Write the missing factors or multiples. Tell if the missing number is a factor or multiple. (each answer, 1 point)

a. 6 x _____ = 24 _____

b. _____ x 5 = 30 _____

c. 8 x 9= _____ _____

d. 4 x 7= _____ _____

SELF TEST 1 (cont.)

1.10 Solve these problems. (each answer, 1 point)

a.

$6\overline{)56}$ $3\overline{)19}$ $7\overline{)43}$

b.

$5\overline{)47}$ $8\overline{)65}$ $3\overline{)22}$

c.

$9\overline{)28}$ $2\overline{)15}$ $4\overline{)31}$

20/25

My score _____

Teacher check _____

II. PART TWO

Learn Box
I can practice multiplication. I understand equations and grouping. I can learn about proper and improper fractions.

Remember to follow the rules for multiplication.

1. Multiply from right to left.
2. If the answer has two digits, write one digit and carry the other.

2 5 3	Multiply ones' place.		Write.	Carry.
2, 3 6 4	Multiply tens' place.	Add.	Write.	Carry.
x 8	Multiply hundreds' place.	Add.	Write.	Carry.
1 8, 9 1 2	Multiply thousands' place.	Add.	Write.	

2.1 Find the product. Carry when necessary.

a.

32 x 6	73 x 7	238 x 4	2,462 x 4

b.

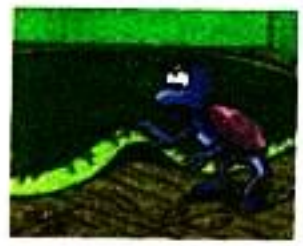
67 x 4	634 x 5	541 x 6	1,275 x 5

c.

38 x 3	415 x 3	3,280 x 6	4,217 x 5

An **equation** is a number sentence that contains an equal sign. The equal sign tells us that the numbers on both sides of the equation are equal to each other. To solve a missing number problem, we add, subtract, or multiply numbers *on both sides* of the equation. If we complete the operations with the *same number*, both sides will remain equal.

N – 27 = 95	N must stand alone.
N – 27 + 27 = 95 + 27	We add 27 to the left side.
N = 122	That means we must add 27 to the right side.
122 – 27 = 95	Substitute for N and prove.



2.2 Look at the following missing number problems.
Write the mathematics operation you would use to solve the problem.
Write the number that you would need to add or subtract.

		add or subtract	number
a.	87 + N = 132	_____	_____
b.	N – 46 = 95	_____	_____
c.	267 = N – 42	_____	_____
d.	N + 67 = 143	_____	_____
e.	429 = N + 256	_____	_____

Some problems may require more than one step to find an answer.
This method is called **grouping**. Parentheses are used to group the numbers.
We always begin by solving the part of the problem that is in parentheses.

2.3 Look at the following missing number problems.
Write the mathematics operation you would use to solve the problem.
Write the number that you would need to add or subtract.

		add or subtract	number
a.	236 + 542 + N = 863	_____	_____
b.	N – (26 + 34) = 73	_____	_____
c.	N + (93 + 42) = 168	_____	_____
d.	720 = N + (315 + 240)	_____	_____
e.	360 = N – (127 + 32)	_____	_____

2.4 Each of these problems should be set up as an equation with N representing the missing number. (*Problems can be set up in more than one way.*) Follow *each* step to solve the problem. Check each answer.

Example:

$$N - (154 + 86) = 423$$

$$N - 240 = 423 \qquad \text{Add the numbers in parentheses.}$$

$$N - 240\ (+240) = 423 + 240 \qquad \text{Add 240 to both sides of equation.}$$

$$N = 673$$

Check: $673 - (154 + 86) = 423$ Check.

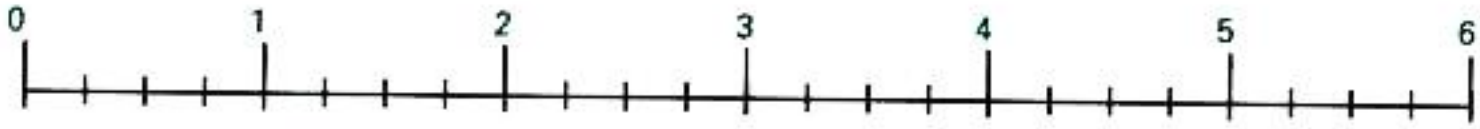
a. Joe collected 94 stamps altogether. He collected 27 in April and 34 in May. How many stamps did he collect in June?

b. James decided to share his rock collection with his friends. He gave 13 to George, 18 to Sharon, and 15 to Mark. He had 32 left. How many rocks did he have to start with?

c. There are 576 books in the library. There are 232 story books, 124 science books, and 92 hobby books. The rest of the books are history books. How many history books are there in the library?

Fractions are numbers that stand for parts of things. They are made of two numbers separated by a fraction bar. The top number is the numerator and the bottom number is the denominator.

The denominator tells us how many parts the whole is divided into.
The numerator tells us how many parts of the whole we are talking about.



2.5 Place a ruler on the number line above.

a. What does each number represent? _____

b. How many parts are there in each inch? _____

c. What would the denominator be in a fraction describing one inch on this number line? _____

d. What would the numerator be of a fraction describing all the parts of one inch on this number line? _____

e. Write the fraction that represents one whole inch on this number line. _____

Fractions are read differently from whole numbers. We use the ordinal number to say the denominator. When we write a fraction, a hyphen (-) is used to connect the numerator and denominator.

$\frac{5}{6}$ five-sixths $\frac{3}{9}$ three-ninths $\frac{9}{16}$ nine-sixteenths

2.6 Write the fractions in words or digits. *Check spelling.*

a. $\frac{4}{8}$ _____

b. five-ninths _____

c. $\frac{7}{12}$ _____

d. eight-twentieths _____

2.7 Look at the number line again.

a. How many parts are there in the second inch? _____

b. What is the denominator of the fraction describing the second inch? _____

Number lines can be used to represent fractions. This is called sequencing fractions. Sequencing fractions looks like this.

$\frac{1}{4}$ $\frac{2}{4}$ $\frac{3}{4}$ $\frac{4}{4}$ $\frac{5}{4}$ $\frac{6}{4}$

2.8 Put these fractions where they belong below the number line.

a. Continue sequencing until you reach the whole number 6.
What is the last fraction that you have written? _____

b. Circle each whole number and the fraction you have written below it.

Proper fractions have smaller numerators than denominators.
Improper fraction have larger numerators than denominators.

2.9 Write an example of...

a. a proper fraction from the number line. _____

b. an improper fraction from the number line. _____

Mixed numbers contain a whole number and a fraction. $2\frac{3}{4}$

Mixed numbers may be sequenced this way.

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

2.10 Place these fractions, whole numbers, and mixed fractions above the number line. Continue the pattern until you reach the whole number 6.

Mixed numbers are read and written in this way.

$1\frac{1}{4}$ one and one-fourth $2\frac{3}{8}$ two and three-eighths

2.11 Write the mixed number in words or in digits.

a. five and six-fifteenths _____

b. $6\frac{3}{4}$ _____

c. eleven and three-fifths _____

d. $8\frac{4}{9}$ _____

SELF TEST 2

2.01 Find the product. (each answer, 1 point)

6,341	5,382	2,483	6,372
x 2	x 6	x 8	x 5

2.02 Look at the following missing number problems. (each answer, 1 point)
Write the mathematics operation you would use to solve the problem.
Write the number that you would need to add or subtract.

	add or subtract	number
a. $N + (243 - 69) = 736$	_____	_____
b. $426 = N - (46 + 348)$	_____	_____

2.03 This problem should be set up as an equation with N representing the missing number. Follow *each* step to solve the problem. Check.

Gloria had 76 stamps in her stamp collection. She gave 15 to Jason and 18 to Chrissie. How many stamps did Gloria have left?

a. Write the problem.
(2 points)

b. $N =$ _____
(1 point)

2.04 Write a fraction with ... (each answer, 1 point)

a. 11 as the numerator and 8 as the denominator. _____

b. Is this a proper or improper fraction? _____

2.05 Mary had 10 pieces of candy in her hand. She gave 3 pieces to Jean. Express the amount of candy Mary gave to Jean as a fraction. (1 point) _____

2.06 Jim had three apples. He cut one apple into four pieces and gave one piece to his pet rabbit. Express as a mixed number, the amount of apple that Jim had after feeding his rabbit. (1 point) _____

2.07 Write the missing fractions in this sequence. (2 points)

$\frac{1}{3}$ $\frac{2}{3}$ _ _ $\frac{5}{3}$ _ _ $\frac{8}{3}$

2.08 Write the missing mixed numbers or whole numbers in this sequence.
(each answer, 1 point)

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

2.09 Write as words or in digits. (each answer, 1 point)

a. $\frac{4}{5}$ _____

b. Six-sevenths _____

c. $5\frac{2}{3}$ _____

d. Four and seven-eighths _____

20/25

My score _____
Teacher check _____

III. PART THREE

Learn Box

I can learn multiplication facts for 11 and 12.
I can learn about mixed numbers.
I can practice division.

Multiplication and division facts can be learned for elevens and twelves.
Remember! Multiplication and division make a family of facts.
Learn the multiplication facts and know the division facts.

Multiply by eleven.

11 x 1 = 11	11 x 6 = 66
11 x 2 = 22	11 x 7 = 77
11 x 3 = 33	11 x 8 = 88
11 x 4 = 44	11 x 9 = 99
11 x 5 = 55	11 x 10 = 110

Multiply by twelve.

12 x 1 = 12	12 x 6 = 72
12 x 2 = 24	12 x 7 = 84
12 x 3 = 36	12 x 8 = 96
12 x 4 = 48	12 x 9 = 108
12 x 5 = 60	12 x 10 = 120

3.1 Write the missing factors or multiples of eleven.

a.	11 x 10 = _____	11 x 9 = _____	_____ x 7 = 77
b.	11 x 7 = _____	11 x 6 = _____	_____ x 5 = 55
c.	11 x _____ = 22	_____ x 3 = 33	11 x 8 = _____
d.	11 x _____ = 88	11 x _____ = 55	11 x _____ = 33
e.	11 x 3 = _____	_____ x 2 = 22	11 x 4 = _____
f.	_____ x 10 = 110	11 x _____ = 99	11 x _____ = 66

3.2 Write the missing factors or multiples of twelve.

a.	12 x 1 = _____	_____ x 7 = 84	12 x _____ = 120
b.	12 x _____ = 24	12 x _____ = 96	_____ x 3 = 36
c.	12 x _____ = 84	12 x _____ = 36	12 x 9 = _____
d.	12 x 4 = _____	12 x 10 = _____	_____ x 2 = 24
e.	12 x 6 = _____	12 x _____ = 108	12 x _____ = 72
f.	_____ x 5 = 60	12 x _____ = 60	12 x 8 = _____

Factors are all the numbers that can be multiplied together to produce a given number.
Multiples are numbers that result when factors are multiplied together.

3.3 Write the all factors for each number. Write 5 multiples.
Follow the example.

	factors	multiples
a. 6	1, 2, 3, 6	6, 12, 18, 24, 30
b. 4		
c. 9		
d. 10		
e. 12		
f. 7		

3.4 Find the sum.

3,684	70,963	36	273
+ 2,795	+ 27,548	47	845
		+ 98	+ 602

3.5 Find the difference.

400	605	2,743	8,000
- 129	- 359	- 1,862	- 5,463

3.6 When adding or subtracting fractions, add or subtract just the numerators.

a.

$$\begin{array}{r} \frac{6}{8} \\ -\ \frac{3}{8} \\ \hline \end{array} \qquad \begin{array}{r} \frac{4}{9} \\ +\ \frac{6}{9} \\ \hline \end{array} \qquad \begin{array}{r} \frac{4}{7} \\ +\ \frac{4}{7} \\ \hline \end{array} \qquad \begin{array}{r} \frac{3}{5} \\ -\ \frac{1}{5} \\ \hline \end{array}$$

b.

$$\begin{array}{r} \frac{4}{15} \\ +\ \frac{2}{15} \\ \hline \end{array} \qquad \begin{array}{r} \frac{6}{7} \\ -\ \frac{5}{7} \\ \hline \end{array} \qquad \begin{array}{r} \frac{8}{13} \\ -\ \frac{3}{13} \\ \hline \end{array} \qquad \begin{array}{r} \frac{7}{8} \\ +\ \frac{2}{8} \\ \hline \end{array}$$

c.

$$\begin{array}{r} \frac{2}{3} \\ -\ \frac{1}{3} \\ \hline \end{array} \qquad \begin{array}{r} \frac{1}{12} \\ +\ \frac{4}{12} \\ \hline \end{array} \qquad \begin{array}{r} \frac{5}{6} \\ +\ \frac{3}{6} \\ \hline \end{array} \qquad \begin{array}{r} \frac{13}{9} \\ -\ \frac{1}{9} \\ \hline \end{array}$$

3.7 List the answers for 3.6 that are...

a. proper fractions _____

b. improper fractions _____

When adding or subtracting mixed numbers, add or subtract the fractions first and then the whole numbers.

$$\begin{array}{r} 5\frac{3}{8} \\ +\ 2\frac{1}{8} \\ \hline 7\frac{4}{8} \end{array} \qquad \begin{array}{r} 15\frac{9}{16} \\ -\ 3\frac{4}{16} \\ \hline 12\frac{5}{16} \end{array}$$

Fraction problems can be written in words.

Five and three-eighths plus two and one-eighth equals seven and four-eighths.

Fifteen and nine-sixteenths minus three and four-sixteenths equals twelve and five-sixteenths.

3.8 Solve these problems with mixed numbers.

a.

$$\begin{array}{r} 5\frac{4}{6} \\ -\ 2\frac{1}{6} \\ \hline \end{array} \qquad \begin{array}{r} 8\frac{5}{7} \\ +\ 5\frac{1}{7} \\ \hline \end{array} \qquad \begin{array}{r} 11\frac{7}{12} \\ -\ 8\frac{4}{12} \\ \hline \end{array} \qquad \begin{array}{r} 7\frac{9}{18} \\ +\ 3\frac{2}{18} \\ \hline \end{array}$$

b.

$$\begin{array}{r} 7\frac{1}{3} \\ +\ 2\frac{1}{3} \\ \hline \end{array} \qquad \begin{array}{r} 6\frac{5}{12} \\ -\ 2\frac{3}{12} \\ \hline \end{array} \qquad \begin{array}{r} 8\frac{4}{5} \\ -\ 1\frac{2}{5} \\ \hline \end{array} \qquad \begin{array}{r} 3\frac{4}{9} \\ +\ 8\frac{2}{9} \\ \hline \end{array}$$

Write the first problem in words...

c. for 3.8 (a.) _____

_____

d. for 3.8 (b.) _____

_____

Follow the steps for division.

$$\begin{array}{r} 7 \text{ R3} \\ 6\overline{)45} \\ \underline{42} \\ 3 \end{array}$$

1. Divide from left to right.
   4 is not a multiple of 6.
   The largest multiple of 6 less than 45 is 42.
   6 divides into 45 seven (7) times.
2. Multiply. 6 x 7 = 42. Write the 42.
3. Subtract. 45 – 42 = 3 The remainder is 3.

3.9 Follow the steps for division.

a.

$7\overline{)52}$ $3\overline{)17}$ $3\overline{)22}$

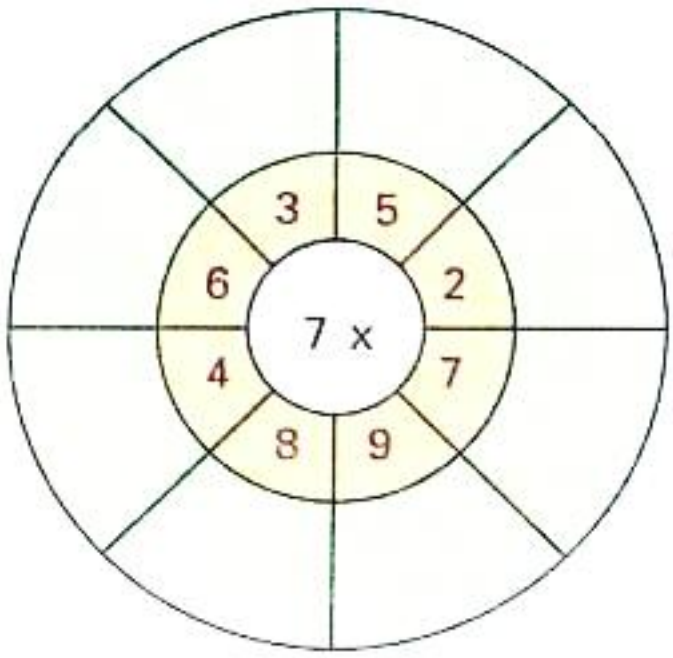
b.

$2\overline{)13}$ $7\overline{)37}$ $4\overline{)18}$

c.

$3\overline{)29}$ $8\overline{)75}$ $9\overline{)65}$

3.10 Complete the fact puzzles.



+	7	3	8	6
0				
7				
5				

Review the tables for Roman numerals.

I = 1 V = 5 X = 10 L = 50 C = 100 D = 500 M = 1000

Roman numerals are placed next to each other and then added.

MCCLXVI = 1,000 + 100 + 100 + 50 + 10 + 5 + 1 = 1,000 + 200 + 66 = 1,266

Fours and nines are formed by subtraction. The Roman numeral is written before the number it is to be subtracted from.

IV = 4 IX = 9 XC = 90

3.11 Write these Roman numerals as Arabic numerals.

a. VII _____ XC _____

b. LXV _____ XXIV _____

c. CCXII _____ MCD _____

Arabic numerals can be changed to Roman numerals.

849 = 500 + 100 + 100 + 100 + 50 − 1 = DCCCIL

3.12 Write these Arabic numerals as Roman numerals.

a. 53 _____ 574 _____

b. 89 _____ 326 _____

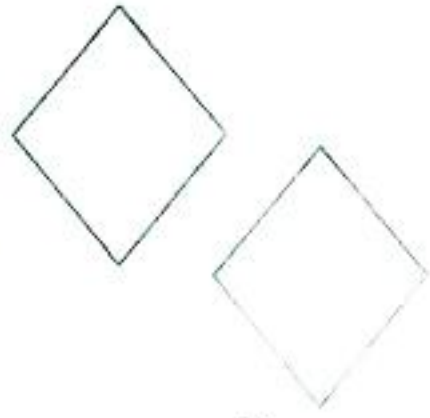
c. 132 _____ 1,525 _____

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

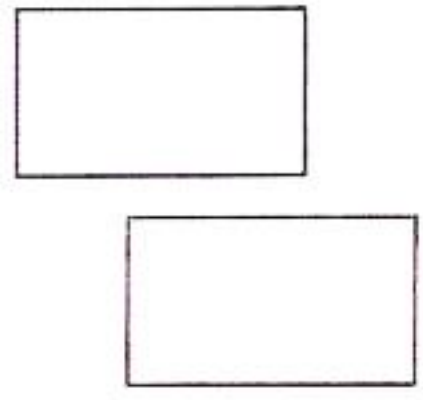
the circles. the diamonds. the rectangles.

a. 3, 4, 5, 7, 9

b. 2, 3, 4, 6, 11



c. 1, 2, 5, 7, 8, 9



SELF TEST 3

3.01 Write the missing factors or multiples of eleven. (each answer, 1 point)

11 x 8 = _____ 11 x _____ = 33 _____ x 10 = 110

3.02 Write the missing factors or multiples of twelve. (each answer, 1 point)

12 x 6 = _____ 12 x _____ = 48 _____ x 7 = 84

3.03 Write all of the factors for each number. Write 5 multiples.
(this problem, 4 points)

		factors	multiples
a.	8	_____	_____
b.	12	_____	_____

3.04 Add or subtract. (each answer, 1 point)

a.

$$\begin{array}{r} \frac{5}{6} \\ +\ \frac{2}{6} \\ \hline \end{array} \qquad \begin{array}{r} \frac{8}{10} \\ -\ \frac{3}{10} \\ \hline \end{array} \qquad \begin{array}{r} \frac{9}{12} \\ +\ \frac{2}{12} \\ \hline \end{array}$$

b.

$$\begin{array}{r} 8\frac{4}{9} \\ +\ 5\frac{3}{9} \\ \hline \end{array} \qquad \begin{array}{r} 9\frac{12}{15} \\ -\ 7\frac{9}{15} \\ \hline \end{array} \qquad \begin{array}{r} 8\frac{6}{16} \\ +\ 4\frac{2}{16} \\ \hline \end{array}$$

(each answer, 1 point)

3.05 Find the sum.

136	3,674	20,763	736,241
+ 272	+ 2,385	+ 57,491	+ 248,635

3.06 Find the difference.

360	805	7,004	3,092
− 241	− 576	− 4,372	− 1,563

3.07 Find the quotient.

$7\overline{)38}$	$6\overline{)46}$	$5\overline{)31}$	$8\overline{)25}$

3.08 Write in Arabic numerals. CCIV _____

3.09 Write in Roman numerals. 632 _____

24/30

My score _____
Teacher check _____

IV. PART FOUR

Learn Box

I can review measurements.
I can learn about equivalent fractions.

4.1 Tell how many.

1 yard = _____ inches

1 ton = _____ pounds

1 pint = _____ ounces

1 gallon = _____ quarts

1 bushel = _____ pecks

3 feet = _____ yard

12 inches = _____ feet

1 quart = _____ pints

1 pound = _____ ounces

36 inches = _____ yards

4.2 Answer the questions.

a. Jeff grew three inches last year. Did he grow at least one foot? _____

b. Beth's parents bought her a doll house that was one yard long. How many inches was that? _____

c. Richard bought 6 feet of string and 32 inches of rope. Together, how many inches of string and rope did he buy? _____

d. Jane weighed 73 pounds and 3 ounces last year. She gained 13 ounces this year. How many pounds does she weigh now? _____

e. Corey bought 16 pints of cream for the party. How many quarts is that equal to? _____

f. Kenneth has a glass that holds 1 pint and 8 ounces. How many ounces does the glass hold? _____

4.3 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			units		
	hundreds	tens	ones	hundreds	tens	ones
a. 35,265 =	_____ +	_____ +	_____ +	_____ +	_____ +	_____
=	_____ +	_____ +	_____ +	_____ +	_____ +	_____
b. 408,332 =	_____ +	_____ +	_____ +	_____ +	_____ +	_____
=	_____ +	_____ +	_____ +	_____ +	_____ +	_____
c. 9,751 =	_____ +	_____ +	_____ +	_____ +	_____ +	_____
=	_____ +	_____ +	_____ +	_____ +	_____ +	_____

4.5 If we want to round a number to a certain place, we look at the number in the next place to the right. If the number is 5 or more, we round to the next higher number. If the number is less than 5, we round to the lower number.

a. Round these numbers to the nearest tens.

37 _____ 94 _____ 83 _____ 15 _____

b. Round these numbers to the nearest hundreds.

645 _____ 837 _____ 251 _____ 460 _____

c. Round these numbers to the nearest thousands.

2,823 _____ 5,061 _____ 4,220 _____ 8,915 _____

4.6 Round the numbers in each problem. Estimate the answer.

a. Jim did 37 sit-ups on Monday, 41 on Tuesday, 38 on Wednesday, 23 on Thursday, and 32 on Friday. About how many sit-ups did Jim do altogether? _____

b. George has 45 baseball cards, Julian has 34, John has 29, and Robert has 19. About how many baseball cards do they have altogether? _____

4.7 Find the sum.

36	2,734	60,842	367,281
42	+ 8,079	+ 76,975	+ 149,263
+ 75			

4.8 Find the difference.

305	608	4,002	76,342
- 276	- 372	- 1,483	- 43,957

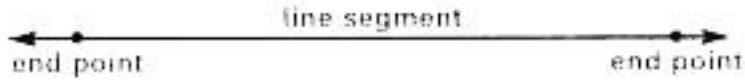
4.9 Find the product.

38	143	3,645	5,306
x 7	x 5	x 4	x 9

4.10 Find the quotient.

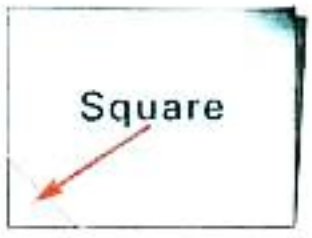
$3\overline{)29}$	$5\overline{)46}$	$7\overline{)19}$	$8\overline{)46}$

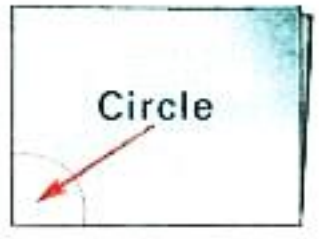
You will need
paper, ruler, and scissors.

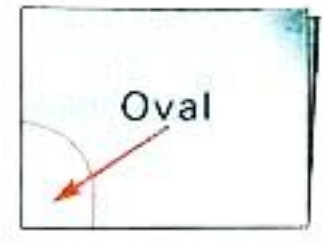


Solid shapes can be drawn using plane shapes.

4.11 Fold four pieces of paper in half and then fold it again. Use a ruler to draw these patterns and then cut along the line. Write the name of the shape on the pattern you have cut. Follow the instructions to draw solid shapes.







a. Place the square on a piece of paper and draw around the outside. Mark the corners or end points. Move the square down about $\frac{1}{2}$ inch and over $\frac{1}{2}$ inch. Draw around the outside of the square and mark the corners or end points. Now draw line segments connecting the end points of the two squares.

b. Place the circle on a piece of paper and draw around it. Move it up about $1\frac{1}{4}$ inches and draw around it again. Connect two of the outermost points of the two circles with line segments.

c. Place the diamond on paper and set it so it is not quite straight. Draw around the outside of the diamond and mark the end points. Mark an end point about 2 inches above the center of the diamond. Draw line segments connecting the end point you have just made with each end point of the diamond.

d. Place the oval on paper and draw around it. Mark an end point about 1 inch above the oval. Draw line segments connecting the end point you have just made to the two outermost points of the oval.

e. Each plane shape was used to draw a solid shape.
Name the solid shape. Choose from pyramid, cylinder, cone, cube.

1) square _____ 2) circle _____

3) diamond _____ 4) oval _____

4.12 Using your ruler, draw a line segment. Put end points at the beginning and end of the line segment. Label the end points A and B.
Place a mark at the center of the line and label the point C.

a. What would be the denominator of a fraction describing $\overline{AB}$? (Hint: $\overline{AB}$ has two parts.) _____

b. What would be the fraction describing $\overline{AC}$? _____

4.13 Place a mark at the center of $\overline{AC}$ and the center of $\overline{CB}$.

a. What would be the denominator of a fraction describing $\overline{AB}$ now? (Hint: $\overline{AB}$ now has four parts.) _____

b. What would be the fraction describing $\overline{AC}$ now? _____

The answers to 4.12(b.) and 4.13(b.) are called **equivalent fractions**. $\frac{1}{2} = \frac{2}{4}$

We multiply the numerator and denominator by the same number to make **equivalent fractions**. $\frac{1 \times 2}{2 \times 2} = \frac{2}{4}$

4.14 Each fraction may have many equivalent fractions.
Write four equivalent fractions for each fraction listed below.
Use 2, 3, 4, and 5 as multipliers.

a. $\frac{4}{5}$ _____

b. $\frac{2}{3}$ _____

c. $\frac{3}{8}$ _____

d. $\frac{5}{6}$ _____

Divide the numerator and denominator by the same number to make equivalent fractions.

$$\frac{2}{4} \div 2 = \frac{1}{2}$$

Not all fractions can be divided to make equivalent fractions. There must be a common factor.

4.15 Find a number that can be divided into both the numerator and denominator. Then write one equivalent fraction for each fraction listed below.

a. $\frac{3}{9}$ _____ $\frac{6}{8}$ _____

b. $\frac{5}{15}$ _____ $\frac{9}{12}$ _____

There is a short cut to test for equivalent fractions. Multiply the numerator of each fraction by the denominator of the other fraction. The answers should be the same.

$$\begin{array}{l} 5 = 10 \\ \underline{7 = 14} \end{array} \qquad \begin{array}{l} 5 \times 14 = 70 \\ 7 \times 10 = 70 \end{array}$$

4.16 Test for equivalent fractions. Follow the example.

a. $\frac{4}{5} = \frac{8}{10}$ $4 \times 10 = 40$ $5 \times 8 = 40$ (= , ≠)

b. $\frac{2}{3} = \frac{4}{9}$ _____ (= , ≠)

c. $\frac{5}{8} = \frac{15}{16}$ _____ (= , ≠)

d. $\frac{1}{4} = \frac{3}{10}$ _____ (= , ≠)

e. $\frac{3}{5} = \frac{9}{15}$ _____ (= , ≠)

f. $\frac{4}{7} = \frac{8}{14}$ _____ (= , ≠)

g. $\frac{1}{3} = \frac{3}{8}$ _____ (= , ≠)

h. $\frac{2}{6} = \frac{5}{12}$ _____ (= , ≠)

SELF TEST 4

4.01 Tell how many. (each answer, 1 point)

8 quarts = _____ gallons

32 ounces = _____ pounds

24 inches = _____ feet

4 yards = _____ inches

4.02 Circle the measurement that is greater. (each answer, 1 point)

yard feet ounce pint gallon quart

4.03 Round the numbers in the problem. Estimate the answer. (2 points)

The Anderson family was on vacation. They travelled 386 miles the first day, rested the second day, travelled 294 miles the third day, and 136 miles the fourth day. *About* how many miles did they travel in the first four days of their vacation?

_____

4.04 Write 'how many' and then show the value. (each line, 1 point)

	thousands			units		
	hundreds	tens	ones	hundreds	tens	ones

352,066 = _____ + _____ + _____ + _____ + _____ + _____

= _____ + _____ + _____ + _____ + _____ + _____

4.05 Change each fraction to an equivalent fraction by multiplication. Use 5 as the multiplier. (each answer, 1 point)

$\frac{5}{6}$ = _____ $\frac{3}{8}$ = _____ $\frac{2}{7}$ = _____

4.06 Change each fraction to an equivalent fraction by dividing. Find a common divisor. (each answer, 1 point)

$\frac{6}{18}$ = _____ $\frac{4}{8}$ = _____ $\frac{5}{15}$ = _____

4.07 Circle the correct symbol.
Prove your answer using cross multiplication. (each answer, 1 point)

a. $\frac{4}{5}$ (=, ≠) $\frac{8}{15}$

b. $\frac{3}{7}$ (=, ≠) $\frac{9}{21}$

c. $\frac{2}{9}$ (=, ≠) $\frac{8}{36}$

d. $\frac{3}{8}$ (=, ≠) $\frac{5}{16}$

4.08 Write the solid shape you made from a ... (each answer, 1 point)

square. _____

circle. _____

diamond. _____

oval. _____

My score _____
Teacher check _____

V. PART FIVE

Learn Box

I want to read and write about the things I have learned.

5.1 Write the fraction $\frac{6}{9}$ in words.

_____

5.2 Use cross multiplication to prove that these are or are not equivalent fractions.

a. $\frac{2}{3}$ (= , ≠) $\frac{4}{5}$

_____

b. Write the missing numerator to make these equivalent fractions.

$\frac{4}{5} = \frac{\quad}{10}$

c. Write the missing denominator to make these equivalent fractions.

$\frac{4}{7} = \frac{12}{\quad}$

5.3 Circle the prime numbers. 1, 2, 3, 7, 8, 10, 13, 18, 19, 21

5.4 Circle the composite numbers. 4, 9, 11, 12, 15, 17, 20, 22, 23, 25

5.5 List all of the factors of each number.

a. 4 _____

b. 18 _____

c. 24 _____

d. 28 _____

5.6 List 6 multiples of each number.

a. 2 _____

b. 3 _____

c. 7 _____

d. 8 _____

5.7 Circle the correct answer.

a.	16 x 5	(= , ≠)	4 x 20
b.	15 + 10	(= , ≠)	20 + 5
c.	25 ÷ 5	(> , <)	14 – 8
d.	253 x 6	(= , ≠)	1518
e.	(14 – 3) + 5	(> , <)	20
f.	18 – (2 x 3)	(> , < , =)	12

5.8 Write an ordinal number.

a. When a person wins the best prize, it is called _____ place.

b. The _____ grade is the last grade in high school.

c. The letter "D" is the _____ letter of the alphabet.

5.9 Write a cardinal number.

a. How many numbers are in a number line from 1 to 10? _____

b. How many eggs are in a carton of a dozen eggs? _____

c. How many pennies are in a dime? _____

5.10 Write a number with 0 in the ones' place, 3 in the tens' place and 8 in the hundreds' place. _____

5.11 0 has no value. What do we call 0 in a number? _____

5.12 The minuend is 4,233 and the subtrahend is 3,629. What will you do to find the answer? _____

5.13 Round 5,940 to the nearest 1,000. _____

5.14

395	6,268	5,820
x 6	x 5	x 3

5.15 Write this number in words.

58,209 _____

_____

5.16 Estimate the answers to these problems. Then solve the problem.

a. 4,862 + 6,100 _____ _____ _____

b. 6,670 − 2,540 _____ _____ _____

c. 3,831 + 6,920 _____ _____ _____

5.17 Select from cone, cylinder, pyramid, cube, sphere.

a. Paul was saving nickels and decided to count them. He stacked them in piles of ten. What solid shape did his piles resemble? _____

b. Jeff and Linda were making costumes for a class play. They needed a hat for the clown. What solid shape would they probably use to make the hat? _____

5.18 Jeremy's friends planned a baseball game on a vacant lot. They laid the field out so that there were 20 yards between each base.

a. The friends laid the bases out in the shape of a polygon. Can you name the polygon? _____

b. Make a drawing of the polygon using line segments and mark each base as an end point. Label the end points H for Home, 1 for first base, 2 for second base and 3 for third base. Write in the number of yards between each base.

c. If Jeremy hit a double, how far would he have to run? _____

d. If he hit a home run, how far would he have to run? _____

5.19 What is the next prime number after 13? _____

5.20 2 x 4 = 8 What are 2 and 4 in this problem? _____

5.21 Jim was collecting rocks but wanted to share them with his friends. He had 26 rocks and wanted to divide them evenly into 5 piles.

a. How many rocks did Jim put in each pile? _____

b. How many rocks did he have left over? _____

5.22 Solve these problems.

a. $6\overline{)49}$ $3\overline{)28}$ $5\overline{)23}$

b. $6\frac{3}{12} - 3\frac{2}{12}$ $5\frac{9}{15} + 2\frac{4}{15}$ $7\frac{4}{24} - 5\frac{2}{24}$

5.23 Write the first five digits. _____

5.24 Jackie's mother had hidden 50 pennies for a scavenger hunt for his birthday. Mary found 12, Jimmy found 14, Sherry found 8, and Jackie had found 9.

a. Write a problem using N to represent the number of pennies that have not been found.

b. N= _____

5.25 Complete the problem to find the missing number.

a.	10,295 – 3,429 = N	N = _____	39 – 15 = N	N = _____
b.	3 x 4 = N	N = _____	15 x (2 + 4) = N	N = _____
c.	4,236 + 489 + 23 = N	N = _____	48 ÷ 6 = N	N = _____

5.26 Change to Roman numerals or Arabic numerals.

a. CCXCVI _____ XLVII _____

b. 536 _____ 95 _____

5.27 Draw an illustration of a linear inch and a square inch. Label.
You must use a ruler to complete this exercise.

5.28 The rule for finding the perimeter is ... P = 2 L + 2 W.
The measurement is always in linear units.

The rule for finding the area is ... A = L x W.
The measurement is always in square units.

Find the perimeter and area of each figure.
Answers *must* be labeled correctly.

			P	A
a.	Length - 18 inches	Width - 6 inches	_____	_____
b.	Length - 7 yards	Width - 3 yards	_____	_____
c.	Length - 17 feet	Width - 8 feet	_____	_____
d.	Length - 2 feet	Width - 9 inches	_____	_____

5.29 Convert coins to cents. Add or subtract.

a. Five dollars, seven dimes, two nickels plus six quarters, one nickel and four pennies. _____

b. Six dollars, four dimes, three nickels minus two dollars, five nickels, and three pennies. _____

SELF TEST 5

(each answer, 1 point)

5.01 a. Is $\frac{5}{8}$ (= , ≠) $\frac{20}{32}$? _____

b. Use cross multiplication to prove your answer. _____

5.02 a. Write the missing numerator to make these equivalent fractions. $\frac{3}{5} = \frac{\quad}{15}$

b. Use cross multiplication to prove your answer. _____

5.03 Circle the prime numbers. 1, 2, 5, 8, 9, 12

5.04 Circle the composite numbers. 3, 4, 7, 10, 13, 15

5.05 List the factors of 6 (1 point). _____

5.06 List five multiples of 6 (1 point). _____

5.07 Circle the correct answer.

(4 x 5) – 15 (= , ≠) 6 + (8 – 2) 15, 685 (> , <) 15,872

5.08 Write a cardinal or an ordinal number in words.

The letter "E" is the _____ letter of the alphabet.

5.09 There are how many digits? _____

5.010 What do we call 0 in a number? _____

5.011 Round 48,682 to the nearest 10,000. _____

5.012

$$\begin{array}{r} 591 \\ \times\ 8 \\ \hline \end{array} \qquad \begin{array}{r} 658 \\ \times\ 7 \\ \hline \end{array}$$

5.013 Write this number in words.

60,054 _____

SELF TEST 5 (cont.)

Estimate the answer. Find the answer. (each answer, 1 point)

5.014

9,342	_____		5,362	_____	
− 4,839	− _____		+ 2,794	+ _____	
_____	_____		_____	_____	

5.015 A basketball most closely resembles a (cone , cylinder , sphere). (1 point)

5.016 Draw a triangle. Label each side 5 feet. (each answer, 1 point)

a. How many line segments are there? _____

b. How many end points are there? _____

c. How many angles are there? _____

d. What is the distance around the outside of the triangle? _____

5.17 Solve. (each answer, 1 point)

a. $6\overline{)45}$

b. $4\frac{6}{8} - 2\frac{3}{8}$

c. $3\frac{1}{7} + 2\frac{2}{7}$

5.18 Jennifer needed to sell 45 boxes of cookies to meet her quota. She sold 8 boxes on Thursday, 10 boxes on Friday, and 15 on Saturday.

a. Write a problem using N to represent the number of boxes that Jennifer still has left to sell. (2 points)

b. N = _____ (1 point)

32/40

My score _____

Teacher check _____

MATHEMATICS

406

LIFEPAC TEST

80/100

Name _____

Date _____

Score _____

MATHEMATICS 406: LIFEPAC TEST

Each numbered answer equals 4 points.

1. Write the family of facts for ...

   7, 3, 21 _____ _____ _____ _____

2. Write the prime numbers between 0 and 10. _____

   Write the composite numbers. _____

3. List the factors of 12. _____

4. Fill in the missing factors or multiples.

   6 x 3 = _____ _____ x 4 = 32 5 x _____ = 45 9 x 4 = _____

Solve.

5. $6\overline{)22}$ $8\overline{)46}$ $7\overline{)32}$ $3\overline{)16}$

6. Using the digits 5 and 6 ...

   write a proper fraction. _____ write an improper fraction. _____

7. Julie's mother cut an apple pie into six pieces. She gave one piece to Julie and one piece to her friend Lisa. Express as a fraction the amount she had left. _____

8. Change $\frac{6}{9}$ to an equivalent fraction by dividing. _____

9. Prove that $\frac{6}{7} = \frac{18}{21}$ _____

10. Solve these problems.

$$\begin{array}{r} 7\frac{3}{8} \\ +\ 6\frac{2}{8} \\ \hline \end{array} \qquad \begin{array}{r} 9\frac{11}{12} \\ -\ 7\frac{6}{12} \\ \hline \end{array}$$

11. Draw a triangle and label each side 7 feet.

a. How many line segments are there? _____

b. How many angles are there? _____

c. How many end points are there? _____

d. What is the distance around the outside of the triangle? _____

12. $18 \div (4 + 2) = N$ N = _____

13. Jack was saving money for a fishing trip with his father. He wanted to have $45.00. He already had $9.00. His grandparents had promised him $20.00. How much more did he need to save?

Write a missing number problem.

N = _____

14. Tell how many.

a. 1 yard = _____ inches 1 gallon = _____ quarts

b. 1 ton = _____ pound 1 foot = _____ inches

15.

$$\begin{array}{r} 2{,}538 \\ +\ 7{,}659 \\ \hline \end{array} \qquad \begin{array}{r} 638 \\ 274 \\ +\ 159 \\ \hline \end{array}$$

16.

$$\begin{array}{r} 706 \\ -\ 387 \\ \hline \end{array} \qquad \begin{array}{r} 500 \\ -\ 279 \\ \hline \end{array}$$

17. Write the multiples.

6 _____ _____ _____ _____ _____ _____ _____ _____ 60

12 _____ _____ _____ _____ _____ _____ _____ _____ 120

18. Fill in the factor or multiple.

12 x _____ = 84 _____ x 11 = 55 9 x 11 = _____ 6 x 12 = _____

19. Write in words.

a. $\frac{3}{4}$ _____

b. $18\frac{7}{12}$ _____

c. 27 x 3 = 81 _____

d. 80,360 _____

20. 67 x 8 = _____

21.
$$\begin{array}{r} 563 \\ \times \quad 7 \\ \hline \end{array}$$

22. 728 x 5 = _____

23.
$$\begin{array}{r} 3{,}824 \\ \times \quad 6 \\ \hline \end{array}$$

24. 6,804 x 3 = _____

25. Circle the solid shapes.

cylinder	circle	square	cone
oval	cube	pyramid	diamond