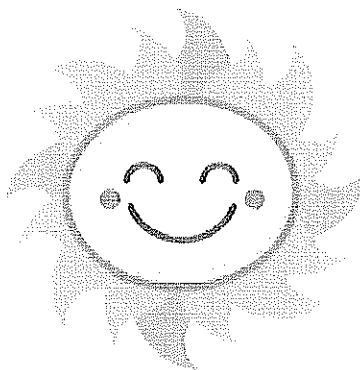


Student Name: \_\_\_\_\_

# Vernon Public Schools Grade 4 Mathematics Summer Review Packet



This optional Summer Math Packet consists of problems that review, maintain, and deepen the skills and concepts learned in 6 strands of mathematics: Operations & Computation; Numeration; Patterns, Functions, & Algebra; Data & Chance; Measurement & Reference Frames; and Geometry.

Most problems will consist of three levels, basic, moderate and challenge /extension. Students are able to work in each strand (problem) at the appropriate level.

Challenge/extension problems are more complex and may require outside data and/or assistance.

## Grade Four – Week One

1. Add using any method you choose (traditional, partial – sums, etc.)

A.

$$\begin{array}{r} 276 \\ + \quad 48 \\ \hline \end{array}$$

$$\begin{array}{r} 28,326 \\ + \quad 4,789 \\ \hline \end{array}$$

B.

$$428 + 67 + 49$$

$$17 + 4006 + 399$$

C.

$$117 + 26.42$$

$$.26 + .017 + 3560 + 193$$

2. a. Using the number 4,826, 319, 247 tell which digit is in the following place.

hundred millions	_____	millions	_____	thousands	_____
ten thousands	_____	hundreds	_____	tens	_____
ones	_____	ten millions	_____	hundred thousands	_____

b. Create the number that has . . . \_\_\_\_\_

eight in the millions place	nine in the ones place
four in the thousands place	six in the tenths place
three in the hundred millions place	zero in the ten millions place
two in the ten thousands place	eight in the hundreds place
seven in all remaining places	

How many digits does this number have in all? \_\_\_\_\_

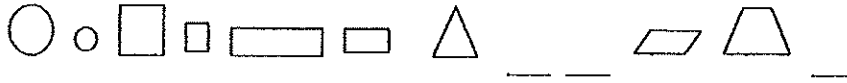
c. Complete the following place value puzzle.

\_\_\_\_, \_\_\_\_ , \_\_\_\_ , \_\_\_\_ , \_\_\_\_ , \_\_\_\_

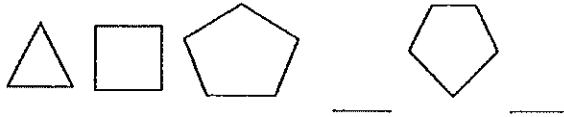
- The digit in the ten millions place equals  $2 * 3$ .
- The digit in the hundreds place is 4 more than the digit in the thousands place.
- The digit in the billions place is half of twelve.
- The digit in the tenths place is zero.
- The digit in the thousands place is three.
- The digit in the most valuable place is nine.
- The digit in the ten billions place is double the digit in the hundredths place.
- The digit in the thousandths place is four less than the digit in the trillions place and one more than the digit to its immediate left.
- The digit in the ones place is the smallest, even, whole number.
- The digit in the hundred thousands place equals  $7 + 7$
- The digit in the millions place is two more than the digit in the hundreds place.
- All remaining places are filled by the digit in the ten billions place.

3. Complete the patterns.

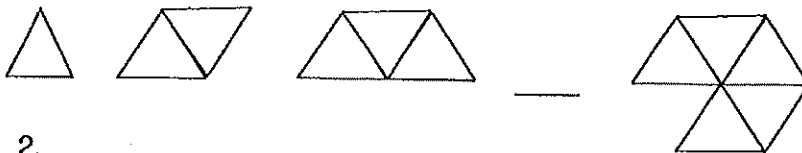
a. 1.



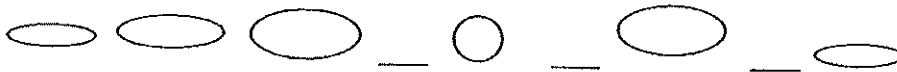
2.



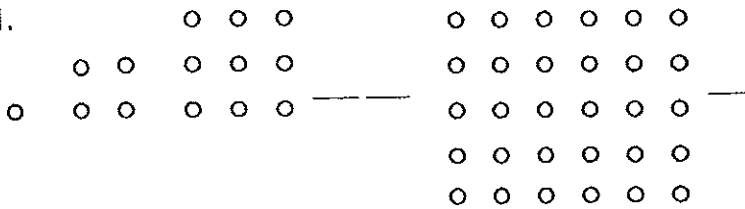
b. 1.



2.



c. 1.



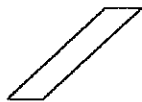
4. a. Use this tally chart to answer the questions below.

Points Earned Playing Cards

player	points
Kim	I
Dante	
Mark	II
Ben	
Sasha	

- Who scored the most points? \_\_\_\_\_
- How many players scored an even number of points? Name them.  
\_\_\_\_\_
- How many more points does Dante need to tie the winner? \_\_\_\_\_
- Who scored twice as many points as Kim? \_\_\_\_\_

5. a. Identify the following 2 dimensional shapes and cross out any shape that is NOT a polygon.



b. Draw/ construct the polygons named below.

1. regular pentagon

2. rhombus

3. right triangle

4. trapezoid

## Grade Four : Week Two

1. Subtract using any method you choose (traditional, partial difference, trade first, etc.)

a.

$$\begin{array}{r} 63 \\ - 48 \\ \hline \end{array}$$

$$\begin{array}{r} 4128 \\ - 199 \\ \hline \end{array}$$

b.

$$4006 - 818$$

$$108,604 - 99,728$$

c.

$$17.4 - 15.01$$

$$3,117 - 3.0006$$

2. Recall that a factor is a number that is multiplied by another to yield the product. Find all the factors of the products listed below, following example. The number in parentheses tells you exactly how many factors the product has.

product	number of factors	factor pairs	factors
ex. 28	(6)	$1 * 28, 2 * 14, 4 * 7$	1, 2, 4, 7, 14, 28
a. 8	(4)		
12	(6)		
b. 24	(8)		
30	(8)		
c. 54	(8)		
100	(9)		

3. Complete the number patterns.

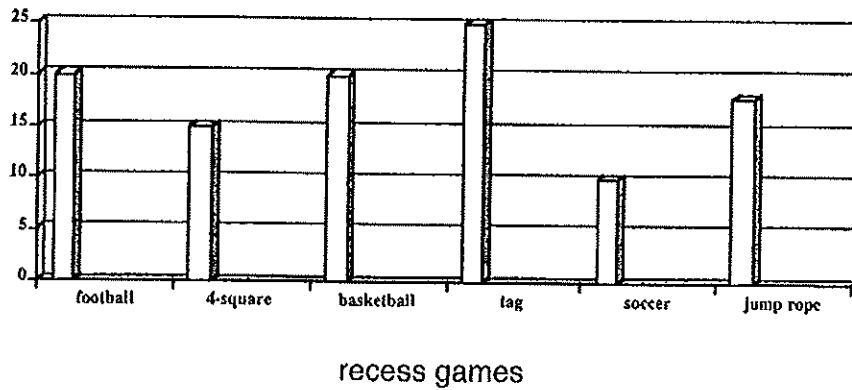
a. 2, 5, \_\_\_\_, 11, 14, \_\_\_\_, 20, \_\_\_\_, \_\_\_\_,  
30, 25, \_\_\_\_, 15, \_\_\_\_, \_\_\_\_, 0

b. 17, 34, \_\_\_\_, 68, \_\_\_\_, 102, \_\_\_\_, 136  
210, \_\_\_\_, 170, 150, \_\_\_\_, 110, \_\_\_\_, \_\_\_\_,

c. 5.6, \_\_\_\_, 4.4, 3.8, \_\_\_\_, \_\_\_\_, 2.0, \_\_\_\_,  
-5, \_\_\_\_, 1, 4, \_\_\_\_, \_\_\_\_, \_\_\_\_,

4. a. Use the bar graph to answer the questions below.

Favorite Recess Games 4<sup>th</sup> Grade



1. Which game is the most popular? \_\_\_\_\_
2. How many students chose the least popular game? \_\_\_\_\_
3. Which two sports had the same number of students choose them? \_\_\_\_\_
4. How many more students favor football over 4-square? \_\_\_\_\_
5. What is a reasonable estimate for the number of students? Who chose jump rope?
  - a. 15
  - b. 20
  - c. 18
  - d. 13

5. a. Measure each line segment to the nearest inch.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

- b. Measure each line segment to the nearest half inch.




1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

- c. Measure each line segment to the nearest quarter inch.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

6. Describe the characteristics of each 2 dimensional polygon below. Include characteristics such as:

- number of sides
- lengths of sides
- any parallel sides?
- number of angles
- types of angles
- number of vertices

shape	# of sides	side length	# parallel sides	# of angles	types of angles	# of vertices
a.  equilateral triangle						
b.  rectangle						
c.  trapezoid						

## Grade Four: Week Three

1. Estimate the sum or difference.

a.  $73 + 42 =$

$426 + 302 =$

b.  $1,294 - 408 =$

$1,742 + 6,793 + 2,120 =$

c.  $39.1 - 17.3 =$

$46.8 + 256.29 + 3,104.7 =$

2. a. Complete the following place value puzzle.
- Write the result of  $2 * 9$  divided by 3 in the thousandths place.
  - Write the product of  $4 * 1$  in the tenths place.
  - Add 3 to the digit in the thousandths place, and write the result in the hundredths place.
  - Write the quotient of  $60 \div 15$  in the ones place.
  - Subtract 5 from the digit in the hundredths place and double it.
  - Write the result in both the tens place and the ten-thousandths place.

b.  $.17 \underline{\quad} .165$

$10,246.328 \underline{\quad} 10,245.318$

- C. Order the following decimals from greatest to least.  
0.93216, 2.9316, 12.396, 0.6923, 3.9261, 0.96123, 0.96321
- 

3. Complete the number patterns.

a. 7, \_\_, 21, \_\_, \_\_, 42, \_\_

72, \_\_, 60, 54, \_\_, \_\_, 36, \_\_

b. 1.1, \_\_, 4.4, 8.8, \_\_, 35.2, 70.4, \_\_

14, 42 \_\_, 378, \_\_, 3402, 10,206

c. 1,4, \_\_, 16, 25, \_\_, \_\_, 64, \_\_, 100

13, \_\_, 117, 351, \_\_, 3159, \_\_, \_\_

4. a. Use the data set to identify the statistical landmarks.

4, 5, 5, 7, 8, 8, 10, 10, 10, 11, 13, 14

1. minimum \_\_\_\_\_

2. maximum \_\_\_\_\_

3. range \_\_\_\_\_

b. Use the data set to identify the statistical landmarks.

15, 13, 21, 17, 15, 14, 18, 23, 14, 18, 13, 17, 15

1. minimum \_\_\_\_\_

2. maximum \_\_\_\_\_

3. range \_\_\_\_\_

4. mode \_\_\_\_\_

# Tables of Measures

## Units of Weight

1 pound (lb) = 16 ounces (oz)

1 ton (T) = 2,000 pounds (lb)

## Units of Weight

1 metric ton (t) = 1,000 kilograms (kg)

1 kilogram (kg) = 1,000 grams (g)

1 gram (g) = 1,000 milligrams (mg)

5. a. Complete the weight equivalencies.

1. metric units

\_\_\_ milligrams = 1 gram

\_\_\_ grams = 1 kilogram

\_\_\_ kilograms = 1 metric ton

2. customary units

\_\_\_ ounces = 1 pound

\_\_\_ pounds = 1 ton




Now write the appropriate abbreviated label for each unit.




ex. Milligram  $\longrightarrow$  mg      ounce  $\longrightarrow$   
gram  $\longrightarrow$       pound  $\longrightarrow$   
kilogram  $\longrightarrow$       ton  $\longrightarrow$   
metric ton  $\longrightarrow$


b. Circle a reasonable weight for each item.

- a cat      30 kg      30 kg      3000kg
- a bowling ball      5 kg      50 kg      500 kg
- a pen      7 g      70 g      700 g
- a soccer ball      .3 kg      3 kg      30 kg

6. Complete the following shape relationships.

a. If  = 1, then  =  =

b. If  = 1, then  =  =

c. If  = 1, construct (draw) shapes with a value of . . .

1.    2



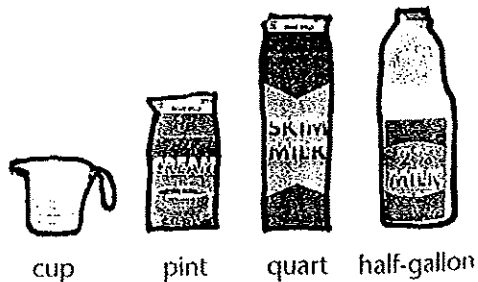
2. Round each number to the place value indicated in parentheses.

1. 23 (ten) → \_\_\_\_\_
2. 451 (hundred) → \_\_\_\_\_
3. 500 (thousand) → \_\_\_\_\_
4. 4,134 (ten) → \_\_\_\_\_

Capacity is a measure of the amount of liquid (or other pourable substance) a container can hold. It is closely related to volume. Volume is the amount of space inside a 3-dimensional shape.

### U.S. Customary Units

- 1 gallon (gal) = 4 quarts (qt)
- 1 gallon = 2 half-gallons
- 1 half-gallon = 2 quarts
- 1 quart = 2 pints (pt)
- 1 pint = 2 cups (c)
- 1 cup = 8 fluid ounces (fl oz)
- 1 pint = 16 fluid ounces
- 1 quart = 32 fluid ounces
- 1 half-gallon = 64 fluid ounces
- 1 gallon = 128 fluid ounces

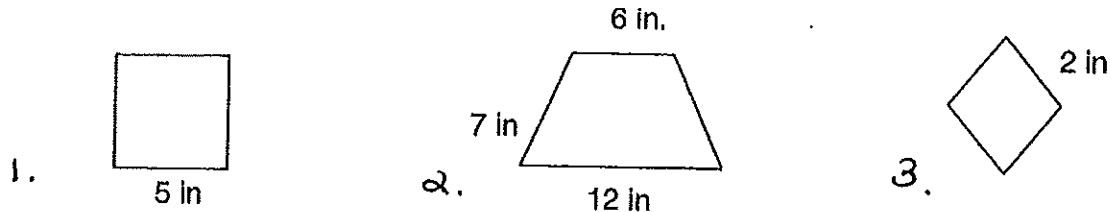


3. Complete the equivalencies for the following U.S. customary units of capacity.

- \_\_\_ cups = 1 pint
- \_\_\_ pints = 1 quart
- \_\_\_ quarts = 1 gallon

- b. 1. How many cups are in 1 gallon of milk? \_\_\_\_\_
2. How many pints can a 5 gallon bucket hold? \_\_\_\_\_

4. a.



Find the perimeter of the polygons shown

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



2.

A number sentence has three parts:

- \*1. the left side
- 2. the relation symbol
- \*3. the right side

\* the left and right sides are mathematical expressions with numbers and/or operations

a. Write T if the number sentence is true or F if the number sentence is false.

1.  $17 + 25 > 43$  \_\_\_\_\_

2.  $29 + 47 < 25 + 23 + 19 + 4$  \_\_\_\_\_

b. Use  $<$ ,  $>$ , or  $=$  to make the number sentences true.

1.  $10,426 + 1,682 + 383$  \_\_\_\_\_  $9,824 + 1,927$

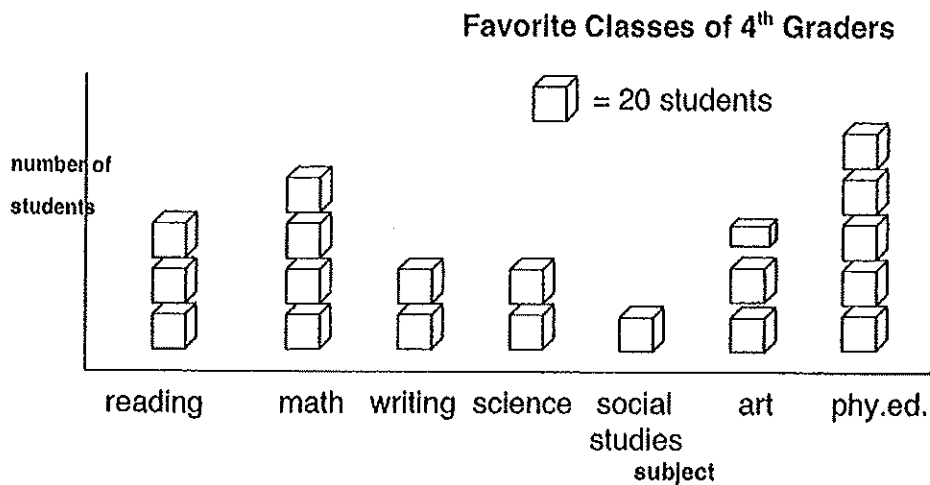
2.  $19.6 + 12 + 3.8$  \_\_\_\_\_  $16.3 + 14.7 + 4.9$

c. Write T if the number sentence is true or F if the number sentence is false.

1.  $4.29 + 3.001 = 7 + 290/1000$  \_\_\_\_\_

2.  $1/2 + 1/2 + 1/4 = 5/4$  \_\_\_\_\_

3. Use the pictograph shown to complete the problems below.



- a.
  1. How many students prefer math? \_\_\_\_\_
  2. How many students chose social studies as their favorite class? \_\_\_\_\_
  3. How many students chose the most popular class? \_\_\_\_\_
  
- b.
  1. What number of students selected art as their favorite class? How do you know?  
\_\_\_\_\_
  2. What was the range between the most and least popular classes? \_\_\_\_\_
  3. If the graph represents all students, how large is this 4<sup>th</sup> grade class? \_\_\_\_\_
  
- c.
  1. Create a new pictograph, using the same data as represented in the graph above, with each symbol representing 15 students. Describe any difficulties you encountered. Which graph is easier to interpret? Why?

4. Keep a running tab on the savings accounts described in the following problems.

- a. Amanda's parents opened a saving account for her at the local bank with a deposit of \$100.00 She added \$45.00 after her birthday. When school was about to start, she withdrew \$75.00 to buy some new clothes. In the fall, she began babysitting for the little boy across the street, earning \$15.50 each week. After 7 weeks of babysitting how much money is in her account?

5.

- a. Identify the 3 dimensional solids shown below.



## Grade Four : Week Six

1. a. Practice multiplying by powers of ten.

$3 \times 100$  \_\_\_\_\_

$17 \times 1000$  \_\_\_\_\_

$28 \times 10,000$  \_\_\_\_\_

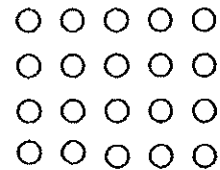
$20 \times 2400$  \_\_\_\_\_

$60 \times 700$  \_\_\_\_\_

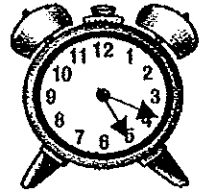
$800 \times 90,000$  \_\_\_\_\_

2. Follow the directions for each set.

- a. 1. Circle  $\frac{1}{4}$  of the set. Then cross out  $\frac{1}{2}$  of the set.  
What fraction of the set remains?

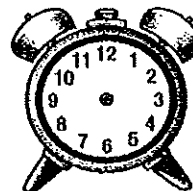


3. a. Write the time shown on the clocks to the exact minute.



- b. Use the blank clock faces below to show these exact times.

1. 4:17
2. 7:46
3. quarter past 3
4. half past 5



## Grade Four : Week Seven

1. a Solve the basic fact problems.

1.  $4 \times 3$  \_\_\_\_\_

4.  $7 \times 9$  \_\_\_\_\_

7.  $9 \times 6$  \_\_\_\_\_

2.  $5 \times 7$  \_\_\_\_\_

5.  $6 \times 4$  \_\_\_\_\_

8.  $6 \times 7$  \_\_\_\_\_

3.  $9 \times 8$  \_\_\_\_\_

6.  $8 \times 7$  \_\_\_\_\_

9.  $3 \times 8$  \_\_\_\_\_

- b. Solve the multiplication problems using any method (traditional, lattice, partial – product)  
Be sure to estimate first!

$$\begin{array}{r} 1. \ 14 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \ 28 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \ 54 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \ 63 \\ \times 38 \\ \hline \end{array}$$

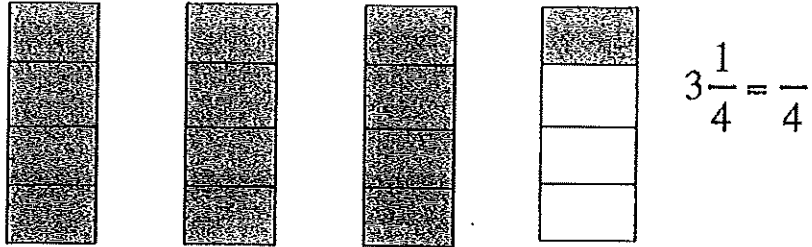
- c. Solve the multiplication problems using 2 methods as a check (traditional, lattice, partial-product). Be sure to estimate!

$$\begin{array}{r} 1. \ 374 \\ \times 26 \\ \hline \end{array}$$

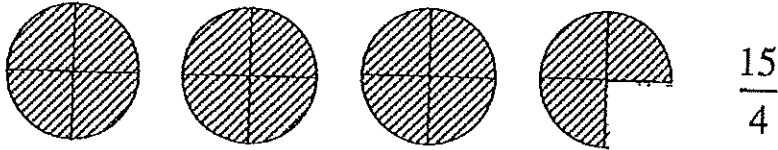
$$\begin{array}{r} 2. \ 9,182 \\ \times 37 \\ \hline \end{array}$$

2. Use the figures below to find the equivalent values.

a.



b.



3. a. Write T if the number sentences are true or F if the number sentences are false.

1.  $9 \times 6 = 72$  \_\_\_\_\_

2.  $2 \times 6 = 4 \times 3$  \_\_\_\_\_

b. Use  $<$ ,  $>$  or  $=$  to make the following number sentences true.

1.  $17 \times 4$  \_\_\_  $68$

2.  $11 \times 12$  \_\_\_  $10 \times 13$

c. A variable is a letter (or symbol) that stands for a number or a range of numbers. Find the value of each variable. (Hint: use only whole number values for the variable b.)

1.  $14 + y = 25$

2.  $117 - z = 32$

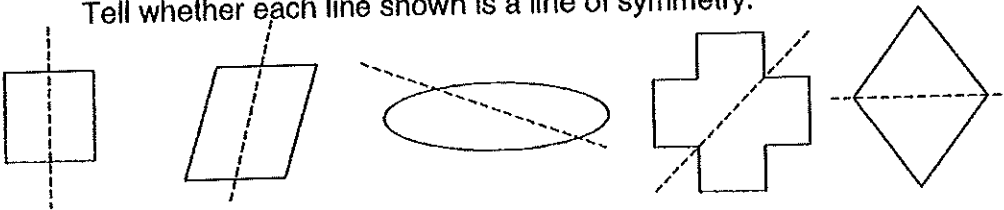
3.  $63 \div a = 9$

4 a.

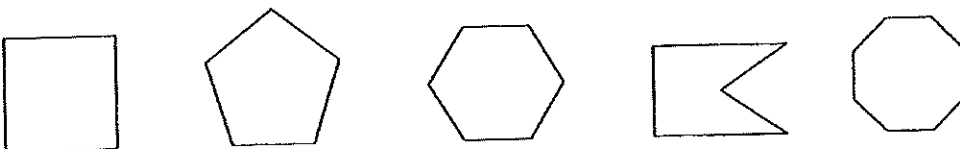
Britney has a dance class this evening. She still needs to get ready, eat dinner, and be driven to the dance studio by her older sister. It takes her 15 minutes to get ready, 20 minutes to eat dinner, and the drive from her house to the studio is 10 minutes. Also, she likes to arrive at least 5 minutes early so she isn't rushed or late. If her class begins at 6:30 pm. what is the latest time she can begin getting ready?

5. a. Define the term symmetry.

Tell whether each line shown is a line of symmetry.



b. Draw all possible lines of symmetry on the following shapes below.



## Grade Four: Week Eight

1. Divide. Then, for the long division problems, check with multiplication. Use Partial Quotients Division, or the method of your choice.

- a.
- |                  |                  |                  |
|------------------|------------------|------------------|
| 1. $72 \div 9 =$ | 4. $56 \div 7 =$ | 7. $81 \div 9 =$ |
| 2. $24 \div 8 =$ | 5. $35 \div 5 =$ | 8. $48 \div 6 =$ |
| 3. $42 \div 6 =$ | 6. $54 \div 9 =$ | 9. $45 \div 5 =$ |

b.

ex.

$$\begin{array}{r|l} 51 & \\ 8 \overline{) 408} & 50 \\ \underline{- 400} & \\ 8 & 1 \\ \underline{- 8} & \\ 0 & \\ \hline & 51 \end{array}$$

$$7 \overline{) 328}$$

$$4 \overline{) 256}$$

3. Complete the following function machine problems.

rule :  $\text{in} + 3 = \text{out}$

a.

in	out
3	
7	
	21
32	
	81

b.

rule :

in	out
10	23
17	
	54
32	45
	81

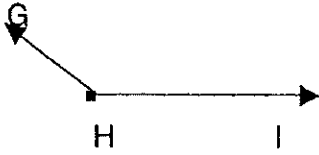
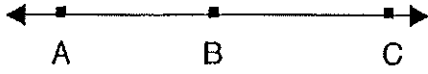
4. Use the data sets to answer the questions below.

a. Sarah earned the following scores on her weekly spelling tests – each worth 20 points.  
19 17 18 19 20 17 16 19 19 16

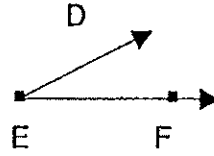
1. What was Sarah's minimum score? \_\_\_\_\_
2. What was Sarah's maximum score? \_\_\_\_\_
3. What was the range in Sarah's spelling scores? \_\_\_\_\_
4. What was the median spelling score for Sarah? \_\_\_\_\_
5. What score is the mode for this data set? \_\_\_\_\_

6. a. Label the following angles using the terms:  
acute, obtuse, right, straight

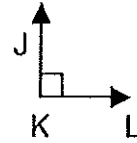
1.



2.



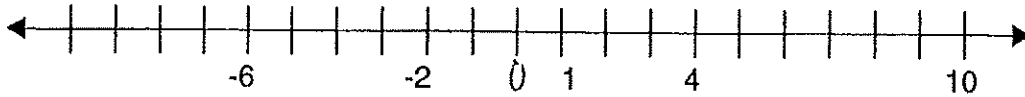
4.



- b. Use a straightedge to create at least 2 examples of each type of angle listed in part (a).

## Grade Four: Week Nine

1.



a. Label each value below on the number line above.

- |    |    |     |        |
|----|----|-----|--------|
| 1. | 3  | 6.  | -8     |
| 2. | -3 | 7.  | 0      |
| 3. | 5  | 8.  | 7      |
| 4. | -5 | 9.  | -7     |
| 5. | 8  | 10. | -9 1/2 |

2.

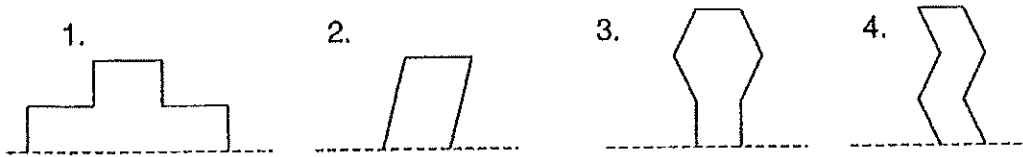
a. Fill in the missing number to make the mathematical expression true.

- $2 + \square = 7$
- $24 - \square = 13$
- $16 + 19 + \square = 48$
- $12 * \square = 48$
- $100 \div \square = 20$

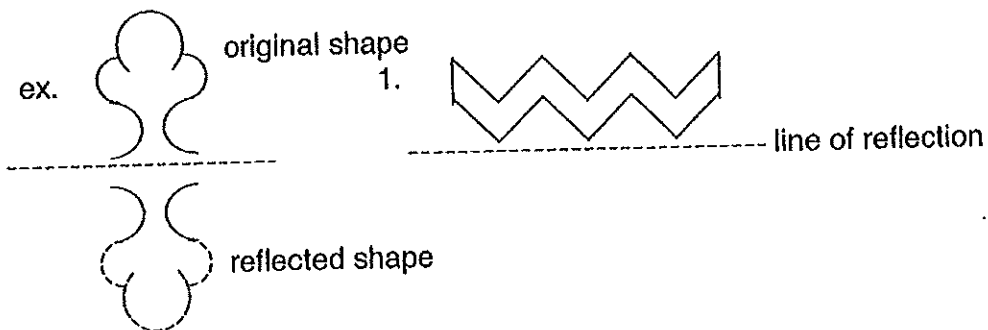
b. A variable is a letter or a symbol that represents a number or a range of numbers. Find the value of each variable in the mathematical expressions below.

- $16 + x = 112$  \_\_\_\_\_
- $117 - y = 93$  \_\_\_\_\_
- $72 + a = 6$  \_\_\_\_\_
- $b * b = 81$  \_\_\_\_\_

a. Using the dotted line as a line of symmetry, complete the shapes.



b. Shapes can be reflected (or flipped) along a line of reflection, which is similar to a line of symmetry within a shape. Draw the reflection of the original shapes. An example has been done for you.



## Grade Four: Week Ten

1.

a. The word percent means "out of 100." There are a few ways to find the percent of a number. Let's look at a basic way to think about percentages – using money!

\* a dollar has 100 cents

1. 50 = \_\_\_\_\_ % of a dollar.

Since percent means "out of 100" and 50 is  $\frac{50}{100}$  needed to make a dollar, 50 = 50% of a dollar.

2. 25 = \_\_\_\_\_ % of a dollar

3. 75 = \_\_\_\_\_ % of a dollar

b. We could have written each monetary value with a dollar sign notation. For example 50 can also be written as \$0.50. This way of writing monetary value uses a decimal point, which brings us to another way of looking at percents!

1. .50 is read as "fifty hundredths" which can be expressed as a fraction,

$\frac{50}{100}$  means 50 out of 100, and since "out of 100" means percent,  $\frac{50}{100} = 50\%$ .

2. .30 = \_\_\_\_\_ %

3. .60 = \_\_\_\_\_ %

4. .85 = \_\_\_\_\_ %

5. .9 = \_\_\_\_\_ % (Hint: try placing a zero after the 9, which does not change the value of the number!)

2. a. Put the following in order from least to greatest.

0.43   0.3267   1.33   1.03267   1.43   0.44   0.50   1.03

b. Put the following in order from greatest to least.

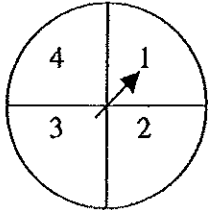
$\frac{0}{8}$     $\frac{1}{4}$     $\frac{1}{2}$     $\frac{5}{8}$     $\frac{3}{4}$    1    $\frac{1}{8}$     $\frac{3}{8}$

3. When mathematicians talk about probability, they are finding out the likelihood (or chance ) of something happening. We often write probability as a fraction, but can also be expressed as a percent, or even as a decimal.

a. To write probability as a fraction:

$$\frac{\text{the chance of getting the desired event}}{\text{all possible events that can happen}}$$

ex.

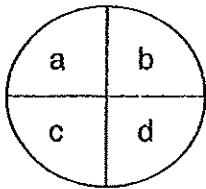


What are the chances of spinning a 2?

$$\frac{\text{chance of spinning a 2}}{\text{could spin 1,2,3,or 4}} = \frac{1}{4}$$

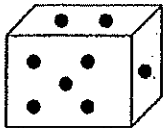
There is a 1/4 chance of spinning a 2.

(Note: It is important that on this spinner all the pieces are of equal size. )



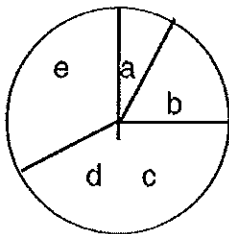
1. What are the chances of spinning an a? \_\_\_\_\_
2. What is the probability of spinning a b? \_\_\_\_\_
3. What is the probability of spinning a c? \_\_\_\_\_
4. What is the probability of spinning a d? \_\_\_\_\_
5. What is the likelihood of spinning a consonant? \_\_\_\_\_

b. Think of a regular, fair die. It is a cube with the digits 1-6 labeled on the six sides, one number on each.



1. What are the chances of rolling a 5? \_\_\_\_\_
2. What is the likelihood of rolling a 2? \_\_\_\_\_
3. What is the probability of rolling an even number? \_\_\_\_\_
4. What is the probability of rolling an odd number? \_\_\_\_\_
5. What are the chances of rolling a number less than 5? \_\_\_\_\_
6. What are the chances of rolling a number greater than 6? \_\_\_\_\_

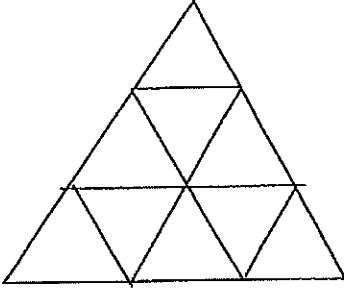
c.



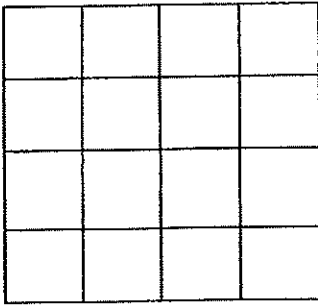
1. What are the chances of spinning an a? \_\_\_\_\_
2. What is the probability of spinning a c? \_\_\_\_\_
3. What is the likelihood of spinning a vowel? \_\_\_\_\_
4. What is the probability of spinning a consonant? \_\_\_\_\_
5. Which 2 letters have an equal chance of getting spun?  
\_\_\_\_\_

c 4. Solve the geometry puzzles!

- a. How many triangles are shown in the figure below?  
Hint: The answer 9 is incorrect!



- b. How many squares are showing in the figure ?



- c. How many rectangles are showing in the figure?

