

# Math 6

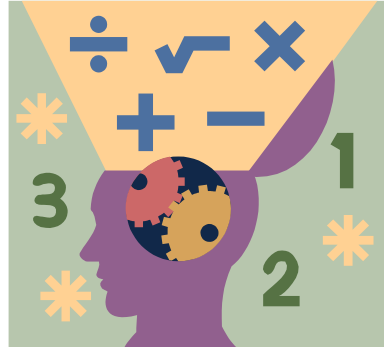


Colonial School District

## Summer Math Packet

The concepts included in this packet will help reinforce key skills your child has encountered in math this year. Please encourage them to complete as many activities as possible as it will lead to greater success next year. The answer key to this packet is available on the district website ([www.colonialsd.org](http://www.colonialsd.org)).

June



Dear Parents/Guardians,

First, we would like to thank you for all of the additional support you offer at home. Education is a true partnership between school and family that is essential to a child's success.

As this school year comes to a close, we wanted to again encourage you to continue to reinforce and foster the mathematical skills and practices that have been developed this year by scheduling time for your child to work through this summer math packet. The activities were selected by our grade level experts with the key mathematical concepts of the school year in mind. The ultimate goal is to reinforce and strengthen the skills that will serve as building blocks for future learning.

Wishing you a relaxing, yet exciting, math-filled summer!

Sincerely,

The Curriculum Department

# *Integers*

## Adding

<b>RULE</b>	<b>EXAMPLES</b>
<b>SAME SIGNS</b> 1. Add. 2. Sum is positive if both are positive; negative if both are negative.	$5 + 8 = 13$ $-5 + (-8) = -13$
<b>DIFFERENT SIGNS</b> 1. Subtract the absolute values. 2. Answer is sign of the integer with the greater absolute value.	$5 + (-8) = -3$ $-5 + 8 = 3$

Find each sum.

1.  $-4 + (-8)$

2.  $14 + 16$

3.  $-43 + (-12)$

4.  $-16 + 11$

5.  $28 + (-42)$

6.  $75 + (-5)$

7.  $-49 + (-32)$

8.  $23 + (-23)$

9.  $86 + (-18)$

# *Integers*

## Multiplying & Dividing

RULE	EXAMPLES	
1. Multiply or divide. 2. The answer is positive if the signs are the same (both positive or both negative); negative if the signs are different (one positive and one negative).	$-5 \times (-8) = 40$	$16 \times (-3) = -48$
	$40 \div 4 = 10$	$-20 \div 10 = -2$

Find each product or quotient.

1.  $-3 \times (-8)$

2.  $-5 \times (-5)$

3.  $-15 \times 3$

4.  $0 \times (-121)$

5.  $-35 \div (-7)$

6.  $-65 \div 5$

7.  $240 \div (-4)$

8.  $36 \div 12$

9.  $(-49 \div 7) \times 8$

# *Integers*

## Subtracting

RULE	EXAMPLES	
1. Change the minus sign to a plus.	$5 - 8$	$-9 - (-12)$
2. Find the opposite of the 2 <sup>nd</sup> number.	$= 5 + -8$	$= -9 + 12$
3. Add; using your rules for adding integers.	$= -3$	$= 3$

Find each difference.

1.  $4 - 7$

2.  $-5 - 3$

3.  $-8 - 2$

4.  $-3 - 24$

5.  $10 - 17$

6.  $13 - 9$

7.  $-41 - 37$

8.  $62 - (-29)$

9.  $-6 - (-6)$

# *Integers*

## Problem Solving

### **RULE**

#### 4-Step Plan for Problem Solving

1. **Explore.** You need to read the problem and know what information you have and need and what is asked.
2. **Plan.** Develop a plan to solve the problem. Choose a strategy. Often it is helpful to make an estimate.
3. **Solve.** Carry out your plan.
4. **Examine.** Be sure to label your answer correctly. Check your answer By comparing to your estimate. If the answer does not make sense, make a new plan and try again.

#### **NOTE:**

Remember in most cases there is more than one way to solve the problem!

1. Rita opened a checking account with a balance of \$150. She wrote 2 checks: \$87 and \$68. How much money remained in the account?
2. During a space shuttle launch a maneuver is scheduled to begin at T minus 85 seconds (i.e. 85 seconds before liftoff). If the maneuver lasts 2 minutes, at what time will the maneuver be complete?
3. The water level in a tank decreased 10 centimeters in 5 minutes. If the tank drains at a steady rate, what is the change in the water level each minute?

# *Fractions*

## Adding and Subtracting

RULE	EXAMPLE
1. Find the lowest common denominator (LCD).  2. Write equivalent fractions using the LCD.  3. Add or subtract the numerators.  Write the sum or difference over the LCD.  4. Reduce if necessary.	$\frac{5}{6} + \frac{3}{8}$ $\text{LCD} = 24$ $\frac{5}{6} = \frac{20}{24}$ $\frac{3}{8} = \frac{9}{24}$ <hr/> $\frac{29}{24} = 1\frac{5}{24}$

Find each sum.

1.  $\frac{2}{7} + \frac{3}{8}$

2.  $\frac{1}{6} + \frac{3}{5}$

3.  $\frac{5}{16} - \frac{2}{9}$

4.  $\frac{3}{4} - \frac{5}{12}$

5.  $3\frac{6}{7} + 4\frac{1}{8}$

6.  $4\frac{3}{5} - 2\frac{2}{3}$

# *Fractions*

## Multiplying

RULE	EXAMPLES	
1. Write any mixed numbers as improper fractions. 2. Multiply the numerators. 3. Multiply the denominators. 4. Reduce if necessary.	$\frac{3}{10} \times \frac{2}{3}$  $\frac{6}{30}$  $= \frac{1}{5}$	$3\frac{5}{8} \times \frac{3}{7}$  $\frac{29}{8} \times \frac{3}{7}$  $= \frac{87}{56}$  $= 1\frac{31}{56}$

Find each product.

1.  $\frac{1}{3} \times \frac{1}{3}$

2.  $\frac{2}{9} \times \frac{3}{8}$

3.  $\frac{3}{10} \times \frac{2}{3}$

4.  $1\frac{3}{4} \times 7$

5.  $4\frac{4}{5} \times 3\frac{3}{4}$

6.  $\frac{4}{5} \times \frac{1}{3} \times \frac{5}{12}$



# Fractions

## Dividing

RULE	EXAMPLES	
1. Write any mixed numbers as improper fractions.	$\frac{3}{10} \div \frac{2}{3}$	$3\frac{5}{8} \div \frac{3}{7}$
2. Change the 2 <sup>nd</sup> fraction to its reciprocal. (i.e. flip it over)	$\frac{3}{10} \times \frac{3}{2}$	$\frac{29}{8} \times \frac{7}{3}$
3. Multiply.	$= \frac{9}{20}$	$= \frac{203}{24}$
4. Reduce if necessary.		$= 8\frac{11}{24}$

Find each quotient.

1.  $\frac{1}{3} \div \frac{1}{6}$

2.  $\frac{5}{8} \div \frac{1}{16}$

3.  $\frac{5}{12} \div \frac{3}{16}$

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

5.  $1\frac{1}{3} \div 2\frac{5}{6}$

6.  $11\frac{3}{4} \div 5\frac{3}{4}$

# *Fractions*

## Problem Solving

### **RULE**

#### 4-Step Plan for Problem Solving

1. **Explore.** You need to read the problem and know what information you have and need and what is asked.
2. **Plan.** Develop a plan to solve the problem. Choose a strategy. Often it is helpful to make an estimate.
3. **Solve.** Carry out your plan.
4. **Examine.** Be sure to label your answer correctly. Check your answer By comparing to your estimate. If the answer does not make sense, make a new plan and try again.

#### **NOTE:**

Remember in most cases there is more than one way to solve the problem!

1. The total length of the bicycle race track is  $\frac{5}{8}$  miles. The first  $\frac{1}{5}$  mile is hilly and the rest is flat. What fraction of the course is flat?
2. The cooking instructions for a turkey recommend roasting the turkey at a low temperature for  $\frac{3}{4}$  hours for each pound. How long should you cook a  $10\frac{1}{2}$  pound turkey?
3. In one year 120 students enrolled at a community college. This was  $\frac{3}{5}$  of the number of students accepted. How many of those accepted did not enroll?

# *Decimals*

## Adding and Subtracting

RULE	EXAMPLE
<p>1. Line up the decimal points.</p> <p>2. Add zeros if necessary.</p> <p>3. Add or subtract.</p> <p><b>NOTE:</b></p> <p>Remember to bring down your decimal point into your answer!</p>	$33.4 - 3.82$ $\begin{array}{r} 33.40 \\ - 3.82 \\ \hline 29.58 \end{array}$

Find each sum or difference.

1.  $3.956 + 2.41$

2.  $0.0589 + 0.278$

3.  $117 + 105.02$

4.  $6.788 - 0.2$

5.  $3.24 - 0.51$

6.  $117 - 105.0023$

# *Decimals*

## Multiplying

RULE	EXAMPLE
<p>1. Multiply as you would whole numbers</p> <p>2. Count the number of digits to the right of the decimal point in each number.</p> <p>3. In you answer, count from the right to the left that number of place and put your decimal point.</p> <p><b>NOTE:</b> Remember, do NOT line up the decimal points when setting up your problem!</p>	<p>62.8 x 0.093</p> <p>62.8 1 decimal place <u>x .93</u> 2 decimal places 1884 <u>56520</u> 58.404 3 decimal places</p>

Find each product.

1.  $0.6 \times 0.8$

2.  $0.9 \times 0.27$

3.  $18.3 \times 0.67$

4.  $7.2 \times 5.4$

5.  $8.4 \times 0.003$

6.  $0.04 \times 0.3$

# *Decimals*

## Dividing

RULE	EXAMPLE
<p>1. Change the divisor to a whole number by moving the decimal point to the right.</p> <p>2. Move the decimal point in the dividend the same number of places. Add zeros if necessary.</p> <p>3. Divide.</p> <p><b>NOTE:</b> Remember to bring your decimal point up into your answer!</p>	$3.9 \div 0.13$ $\begin{array}{r} 0.13 \overline{) 3.9} \\ \underline{39} \\ 0 \end{array}$

Find each quotient.

1.  $82 \div 0.4$

2.  $2.38 \div 3.5$

3.  $121.8 \div 1.4$

4.  $0.0092 \div 8$

5.  $149.73 \div 0.23$

6.  $2.004 \div 0.2$

# *Decimals*

## Problem Solving

### **RULE**

#### 4-Step Plan for Problem Solving

1. **Explore.** You need to read the problem and know what information you have and need and what is asked.
2. **Plan.** Develop a plan to solve the problem. Choose a strategy. Often it is helpful to make an estimate.
3. **Solve.** Carry out your plan.
4. **Examine.** Be sure to label your answer correctly. Check your answer By comparing to your estimate.  
If the answer does not make sense, make a new plan and try again.

#### **NOTE:**

Remember in most cases there is more than one way to solve the problem!

1. Megan has \$80 to spend on clothes for school. After looking at the ads, she decides to buy two pairs of jeans for \$29.99 each and two tank tops for \$8.18 each. Does she have enough money to buy three new hair clips that are on sale 3 for \$10?
2. Paula calls her grandparents long distance in California and talks for 45 minutes. The phone company charges \$0.05 per half-minute. How much does the call cost?
3. Ms. Francis drove her car 427 miles on 15.8 gallons of gas.
  - a. To the nearest mile, how many miles per gallon is this?
  - b. What was the cost of the gasoline she used if the price was \$1.96 per gallon?

# Percent

## Conversions

RULE	EXAMPLE
<p>FRACTION TO PERCENT</p> <ol style="list-style-type: none"><li>1. Change the fraction to a decimal. (numerator <math>\div</math> denominator)</li><li>2. Change to decimal to a percent. (Multiply by 100)</li><li>3. Label with a percent sign.</li></ol>	$\frac{3}{8}$ $3 \div 8 = 0.375$ $0.375 \times 100 = 37.5\%$

Express each fraction as a percent.

1.  $\frac{24}{25}$

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

3.  $\frac{40}{125}$

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

RULE	EXAMPLE
<p>PERCENT TO FRACTION</p> <ol style="list-style-type: none"><li>1. Write the number over 100. (no % symbol)</li><li>2. Reduce the fraction.</li></ol>	$15\%$ $\frac{15}{100}$ $= \frac{3}{20}$

Express each percent as a fraction.

5. 20%

6. 72%

7. 70%

8. 2%

# Percent

## Percent of a Number

RULE	EXAMPLE
<p>1. Identify the part, whole, and /or percent.</p> <p>2. Plug in the numbers into the proportion and solve.</p> <p>Percent Proportion</p> $\frac{\textit{Part}}{\textit{Whole}} = \frac{\%}{100}$	<p>What number is 25% of 520?</p> <p>Percent = 25 Whole = 520 <i>(NOTE: Whole is after "of" in the problem)</i></p> $\frac{\quad}{520} = \frac{25}{100}$ <p><math>100 \times \underline{\quad} = 520 \times 25</math></p> <p><math>100 \times \underline{\quad} = 13,000</math></p> <p><math>100 \times 130 = 13,000</math></p> <p>130 is 25% of 520.</p>

Use a proportion to solve each problem (round your answer to the nearest tenth if necessary).

1. What number is 60% of 72?

2. Find 92% of 120.

3. 25 is what % of 40?

4. 55 is what % of 60?

5. 64 is 50% of what number?

6. 2 is 40% of what number?



# Percent

## Percent of Change

RULE	EXAMPLE
<p>1. Find the amount of increase or decrease.</p> <p>2. Fill in numbers in the proportion:</p> $\frac{\text{Increase/Decrease Amount}}{\text{Original}} = \frac{x}{100}$ <p>3. Solve to find the % of change.</p>	<p>Old: 8 New: 15</p> $15 - 8 = 7 \text{ increase}$ $\frac{7}{8} = \frac{x}{100}$ $7 \times 100 \times = 8 \times x$ $700 = 8x$ $700 \div 8$ <p>88% increase</p>

Use a proportion to solve each problem (round to the nearest whole percent if necessary).

1. Old: \$4

New: \$7

2. Old: 36

New: 18

3. Old: \$6.80

New: \$8.20

4. Old: \$150

New: \$126

5. A book is on sale for \$14. The original price of the book was \$20. Find the percent of the discount.

# *Percent*

## Problem Solving

### **RULE**

#### 4-Step Plan for Problem Solving

1. **Explore.** You need to read the problem and know what information you have and need and what is asked.
2. **Plan.** Develop a plan to solve the problem. Choose a strategy. Often it is helpful to make an estimate.
3. **Solve.** Carry out your plan.
4. **Examine.** Be sure to label your answer correctly. Check your answer By comparing to your estimate. If the answer does not make sense, make a new plan and try again.

#### **NOTE:**

Remember in most cases there is more than one way to solve the problem!

1. Mr. Treed bought his son a new bicycle that cost \$198. The store required a 15% down payment to hold the bike. How much was the down payment?
2. Twenty-eight of the 131 students in Ms. Martin's classes received A's on the last test. About what percent of the students earned A's?
3. Mrs. Miller bought a new suit that cost \$175. She bought it when it was on sale for 40% off. What was the original price of the suit?

**Write a variable expression to represent the word phrase.**

1. Steve had an unknown amount of money in his pocket. He then lost \$23. What is the expression that shows how much money he has now? \_\_\_\_\_
  
2. Adam found a bag of money that he split with 22 friends. What is the expression that shows the amount of money that each person has? (Don't forget to include Adam). \_\_\_\_\_
  
3. Rachel found a box with money in it. What is the expression for this money? \_\_\_\_\_
  
4. Steve cashed his paycheck and then found \$23. What is the expression that shows how much money Steve has now? \_\_\_\_\_
  
5. A dog lost 15 pounds. What is the expression that shows the dog's current weight? \_\_\_\_\_
  
6. Ryan weighs 6 times as much as his dog. What is an expression for Ryan's weight if you call his dog's weight  $n$ ? \_\_\_\_\_
  
7. What is an expression for the value of an unknown number of dimes? \_\_\_\_\_
  
8. Jamie is 7 years older than Nancy. What is an expression for Jamie's age if Nancy's is called  $n$ ? \_\_\_\_\_
  
9. Fritz is 6 years older than twice his brother's age. What is an expression for Fritz's age if his brother's age is called  $n$ ? \_\_\_\_\_
  
10. What is an expression for the circumference of a circle with a diameter of  $n$  inches? \_\_\_\_\_
  
11. What is an expression for the value of an unknown number of half-dollars? \_\_\_\_\_
  
12. If there are 4 times as many dimes in a pile of coins as there are nickels, what is the expression for the number of dimes if you call the number of nickels  $n$ ? \_\_\_\_\_

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*Writing Expressions and Equations*

The table shows phrases written as mathematical expressions.

Phrase	Expression	Phrase	Expression
8 more than a number the sum of 8 and a number $x$ plus 8 $x$ increased by $x$	$x + 8$	7 subtracted from a number $h$ minus 7 7 less than a number a number decreased by 7	$h - 7$
Phrase	Expression	Phrase	Expression
3 multiplied by $n$ 3 times a number the product of $n$ and 3	$3n$	a number divided by 5 the quotient of $t$ divided by 5 divide a number by 5	$\frac{t}{5}$

*Write each phrase as an algebraic expression.*

- 12 more than a number
- The quotient of a number divided by 9
- 4 times a number
- 15 less than a number
- 1 less than the product of 3 and  $m$
- The product of 4 times a number minus 8

*Write each phrase as an algebraic expression.*

- A number minus 6 equals 12
- A number plus 14 equals 25
- 3 more than 5 times the number of dogs is 18 dogs
- 4 times the number of cows plus 2 times the number of ducks is 20
- 2 less than the quotient of 12 divided by a number is 2
- The product of 5 and  $y$  added to 3 is 33

# P E M or D S or A

## Easy Applications

The acronym for this order of operations is **PEMDAS**.

**P**arentheses

**E**xponents

**M**ultiplication

**D**ivision

**A**ddition

**S**ubtraction

left to right

left to right

A popular expression for remembering this is **Please Excuse My Dear Aunt Sally**

**Directions:** Find the numerical value of the following expressions using the correct order of operations.

1.  $9 \times 5 - 4 + 3 \times 4 =$  \_\_\_\_\_

2.  $12 + 8 \times 6 \div 2 \times 8 =$  \_\_\_\_\_

3.  $3 + 6 \times 8 - 5 \times 2 =$  \_\_\_\_\_

4.  $7 + 8 \div 4 + 3 - 2 =$  \_\_\_\_\_

5.  $22 \div 11 + 12 - 3 =$  \_\_\_\_\_

6.  $9 \times 8 - 6 \times 3 + 7 =$  \_\_\_\_\_

7.  $13 + 5 \times 6 \div 2 + 10 =$  \_\_\_\_\_

8.  $35 \div 7 \times 8 + 2 - 4 \times 2 =$  \_\_\_\_\_

9.  $100 \div 5 \times 5 + 4 - 9 =$  \_\_\_\_\_

10.  $88 \div 11 + 56 \div 8 + 12 - 5 =$  \_\_\_\_\_



Remember the following facts:

- The fraction bar ( $\frac{\quad}{\quad}$ ) means division.
- The raised dot ( $\bullet$ ) means multiplication.
- Numbers written next to parenthesis or parentheses next to each other also require multiplication.

**Directions:** Find the numerical value of these expressions.

11.  $5(8) - \frac{30}{5} + 4 \times 3 =$  \_\_\_\_\_

12.  $(7)(9) + \frac{9}{3} - 20 \times 3 =$  \_\_\_\_\_

13.  $8(9) + 10 \bullet 5 + 8 \bullet 2 =$  \_\_\_\_\_

14.  $3 + 8 \bullet 10 - 13 \times 3 =$  \_\_\_\_\_

15.  $17 + 5 - 6 \bullet 4 + \frac{12}{3} =$  \_\_\_\_\_

16.  $9 + \frac{44}{4} - 8 \times 2 + 20 - 3 =$  \_\_\_\_\_

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*Function Table*

Complete the table by filling in the missing number. Then, write the equation.

1.

x	y
1	6
2	7
3	8
4	9
5	
Equation:	

2.

x	y
11	2
12	3
13	4
14	5
15	
Equation:	

3.

x	y
12	2
18	3
24	4
30	5
36	
Equation:	

4.

x	y
1	8
2	16
3	24
4	32
5	
Equation:	

5.

x	y
1	1
2	4
3	7
4	10
5	
Equation:	

6.

x	y
1	6
2	11
3	16
4	21
5	
Equation:	

# Properties of Operations



## VOCABULARY TERMS

<b>Addend</b>	A number that is added in an addition expression.
<b>Associative Property of Addition</b>	The grouping of addends does not change the sum: $(a + b) + c = a + (b + c)$ .
<b>Associative Property of Multiplication</b>	The grouping of factors does not change the product: $(ab) c = a (bc)$ .
<b>Commutative Property of Addition</b>	The order of addends does not change the sum: $a + b = b + a$ .
<b>Commutative Property of Multiplication</b>	The order of factors does not change the product: $ab = ba$ .
<b>Distributive Property</b>	The product of a factor and a sum is equal to the sum of the products: $a(b + c) = ab + ac$ .
<b>Factor</b>	A number that divides into another number with no remainder. When two or more factors are multiplied, they form a product. For example: $2 \times 5 = 10$ ; 2 and 5 are factors, 10 is the product.
<b>Identity Property Addition</b>	The sum of any number and 0 is that number: $a + 0 = a$ .
<b>Identity Property Multiplication</b>	Any number multiplied by one equals that number: $a \times 1 = a$ .
<b>Product</b>	The result of multiplication.
<b>Sum</b>	The result of addition.
<b>Zero Product Property</b>	The product of any number and zero is zero: $a \times 0 = 0$ .

# Properties of Operations



## INDEPENDENT PRACTICE

Fill in the missing number below and tell which property the problem demonstrates.

1.  $51 \times \underline{\hspace{2cm}} = 51$

Property used: \_\_\_\_\_

2.  $71 + (\underline{\hspace{2cm}} + 5) = (71 + 90) + 5$

Property used: \_\_\_\_\_

3.  $115 \times \underline{\hspace{2cm}} = 23 \times 115$

Property used: \_\_\_\_\_

4.  $0 + 78 = \underline{\hspace{2cm}}$

Property used: \_\_\_\_\_

5.  $17 \times (5 \times 12) = (\underline{\hspace{2cm}} \times 5) \times 12$

Property used: \_\_\_\_\_

6.  $54 + 60 = 60 + \underline{\hspace{2cm}}$

Property used: \_\_\_\_\_



# Equations

## One-step Equations

RULE	EXAMPLE
<p>1. Look at what has been done to the variable.</p> <p>2. Undo it using the inverse operation on both sides of the equation.</p> <p>3. Check your answer by replacing the variable with the solution.</p>	$\begin{array}{r} X - 15 = 29 \\ + 15 \quad + 15 \\ \hline X = 44 \end{array}$ <p>✓ <math>44 - 15 = 29</math></p>

Solve.

1.  $d + 32 = 70$

2.  $708 = c + 30$

3.  $x - 89 = 176$

4.  $x - 36 = 12$

5.  $5x = 225$

6.  $12n = 96$

7.  $n \div 72 = 360$

8.  $n \div 12 = 12$

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*Translating Word Problems to Equations*

**Write an equation for each sentence. Solve. Show your work.**

1. A number  $b$  plus 5 equals 15.

2. A number  $r$  minus 2 is 8.

3. A number  $w$  added to 7 is 32.

4. If 4 is added to the product of 6 and a number  $t$ , the result is 76.

5. Rebecca completes four addition problems each minute. How many minutes will it take her to complete 12 problems?

6. Melissa spent three hours each day painting her house. She spent a total of 27 hours painting. How many days did she paint?

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*Graphing on the Coordinate Plane*

**Directions:**

- Identify the quadrant or axis where the point is located.
- Graph each ordered pair on the coordinate grid.
- Write the letter next to the point.

1. A (-4, -1)

2. B (4, 1)

3. C (3, 0)

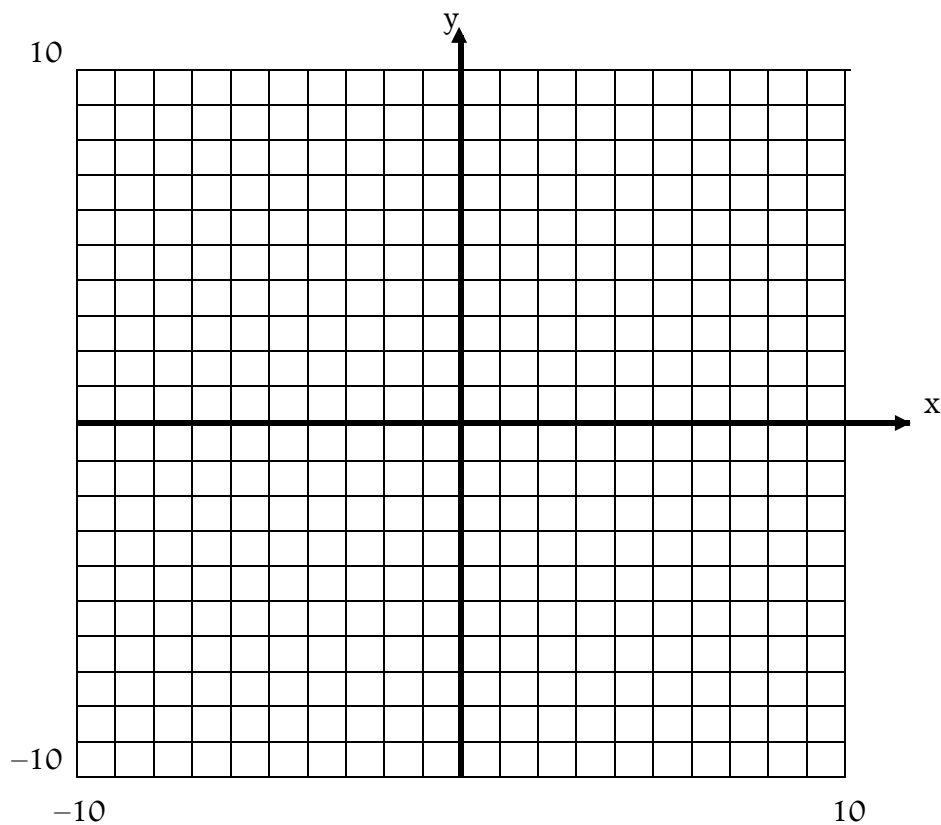
4. D (0, 4)

5. E (2, 2)

6. F (-2, 5)

7. G (-2, -5)

8. H (-1, 4)

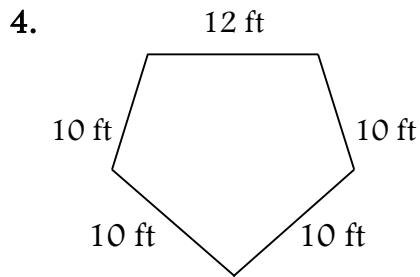
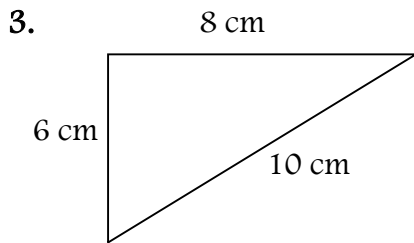
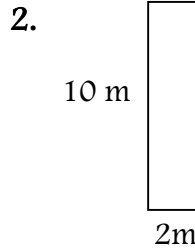
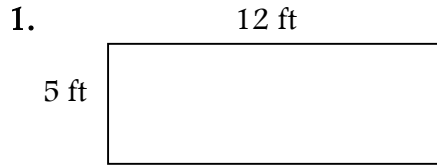


Complete the problems shown.

<p>I scored these points in 8 basketball games: 20, 20, 16, 21, 15, 20, 14, 10.</p> <p>range = _____</p> <p>mean = _____</p> <p>median = _____</p> <p>mode = _____</p>	<p>I earned these amounts: \$2.50, \$3.75, \$6.20, \$3.75, \$8.00, \$5.75.</p> <p>How much greater is the mean than the mode?</p>	<p>I worked these hours at my job: <math>8, 6\frac{1}{2}, 5, 8, 5\frac{1}{2}, 7, 7\frac{1}{2}, 8</math>.</p> <p>Which is greatest: the mean, the mode, or the median?</p>
<p>Five baseball players hit these many home runs in a season: 36, 25, 45, 23, 8.</p> <p>What is the median for these data?</p>	<p>What 4 numbers have a range of 4, a median of 22, a mean of 22, and a mode of 22?</p>	<p>Is there a mode in this data: 3, 4, 5, 6, 7, 8?</p>
<p>Students received these test scores: 96%, 88%, 52%, 75%, 82%, 91%, 75%.</p> <p>What is the mean?</p>	<p>These numbers were on a lottery ticket: 18, 33, 42, 17, 26.</p> <p>What is the range?</p>	<p>I have 5 numbers. The mean for these numbers is 12.</p> <p>What is the sum of the numbers?</p>

Remember: perimeter refers to the sum (+) of all of the outside edges of a figure.

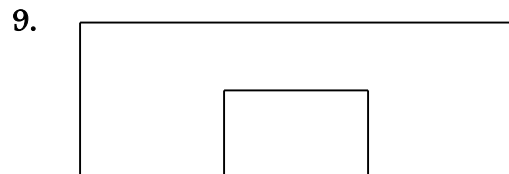
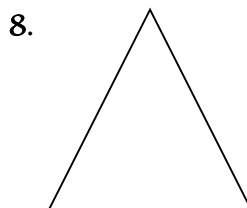
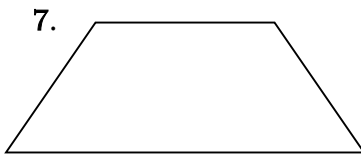
Find the perimeter of each figure shown or described below.



5. rectangle:  
 $l = 6$  yards  $w = 4$  yards

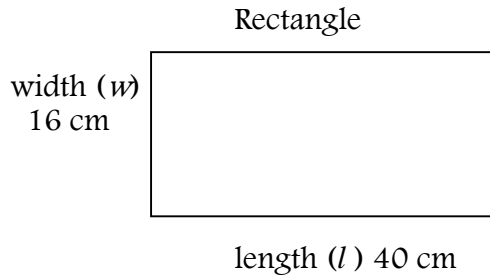
6. rectangle:  
 $l = 7\frac{1}{2}$  inches  $w = 6\frac{3}{8}$  inches

Find the perimeter of each figure. Measure to the nearest eighth inch.



10. Find the perimeter of a square with side  $14\frac{1}{2}$  inches.

11. Find the perimeter of a triangle with sides 4 inches,  $8\frac{1}{2}$  inches, and  $9\frac{1}{4}$  inches.



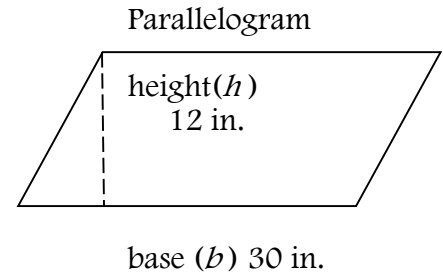
The area of a rectangle equals the product of its length and its width.

$$A = lw$$

$$A = lw$$

$$A = 40 \cdot 16$$

$$A = 640 \text{ cm}^2$$



The area of a parallelogram equals the product of its base and its height.

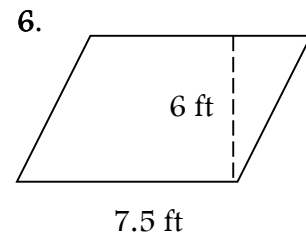
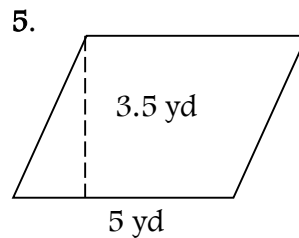
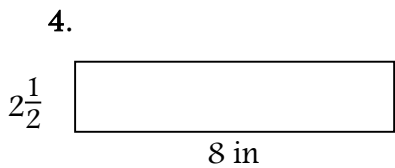
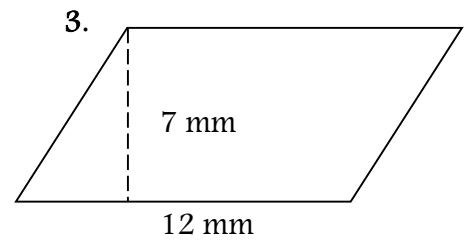
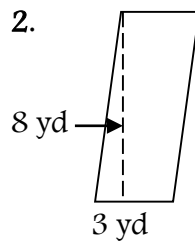
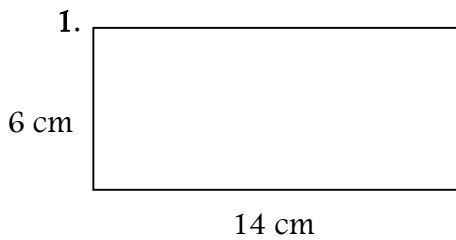
$$A = bh$$

$$A = bh$$

$$A = 30 \cdot 12$$

$$A = 360 \text{ in}^2$$

*Find the area of each figure shown or described below.*



7. parallelogram:  $b = 15 \text{ ft}$ ,  $h = 21 \text{ ft}$

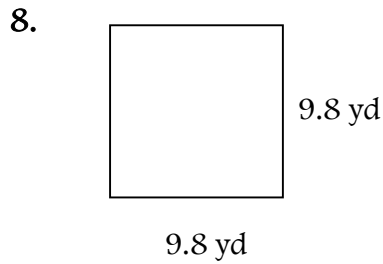
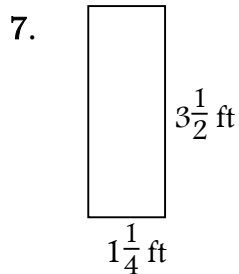
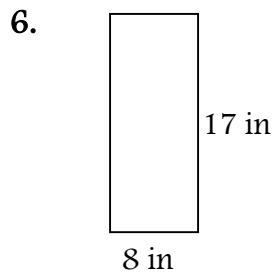
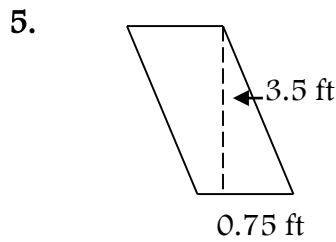
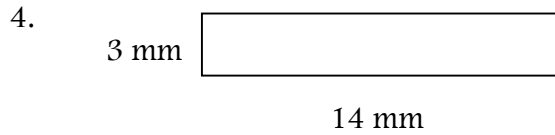
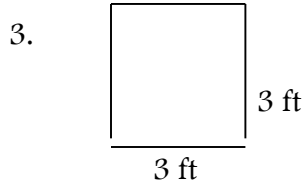
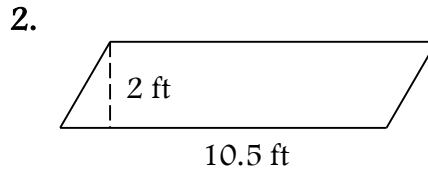
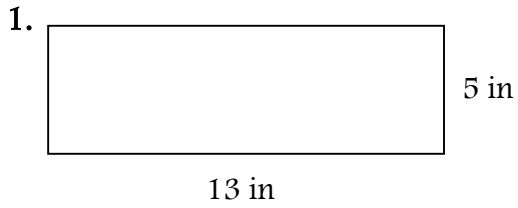
8. rectangle:  $l = 7.5 \text{ cm}$ ,  $w = 12 \text{ cm}$

9. parallelogram:  $b = 4.7 \text{ m}$ ,  $h = 2.2 \text{ m}$

10. rectangle:  $l = 1\frac{1}{4} \text{ yd}$ ,  $w = \frac{1}{2} \text{ yd}$

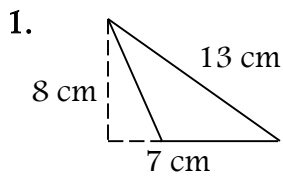
Find the area of each figure.

$$A = b \cdot h \text{ or } A = l \cdot w$$



Area of Triangles

Find the area of each triangle.  $A = (b \cdot h) \div 2$



2. base: 12 ft  
height: 7 ft

3. base: 17 m  
height: 6m

4. base:  $3\frac{1}{2}$  in  
height:  $1\frac{5}{8}$  in

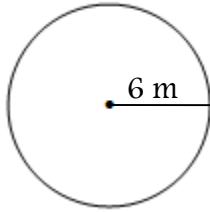
5. base: 3.9 mm  
height: 7.2 mm

6. base: 7 km  
height: 4.2 km

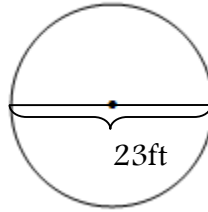
*Geometry Connection: Area of Circles*

*Find the area of each circle shown or described below. Round answers to the nearest hundredth.  $A = \pi r^2$  use 3.14 for  $\pi$*

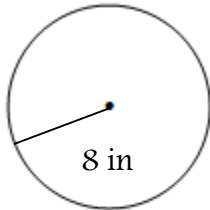
1.



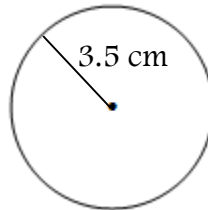
2.



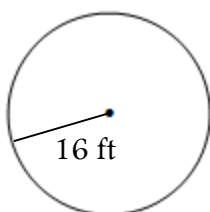
3.



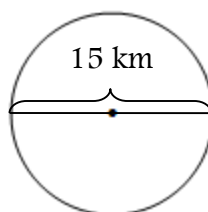
4.



5.



6.

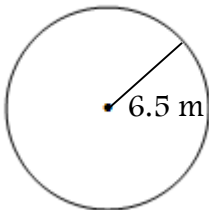


*Circles and Circumference*

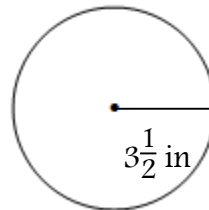
**Find the circumference of each circle show or described below**

$C = 2\pi r$  or  $C = \pi \cdot d$  use 3.14 for  $\pi$

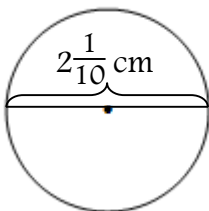
1.



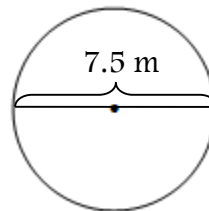
2.



3.



4.



5.  $d = 8\frac{3}{4}$  in.

6.  $r = 11$  ft



## Surface Area of Prisms

Find the surface area of each rectangular prism. Round decimal answers to the nearest tenth.

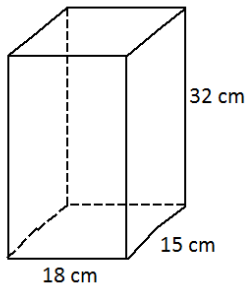
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## Volume of Prisms

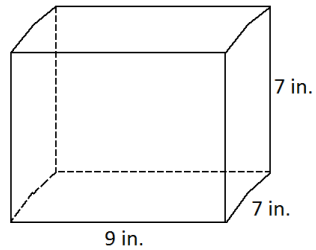
Find the volume of each rectangular prism. Round decimal answers to the nearest tenth.

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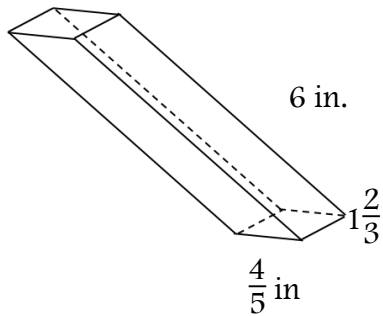
1.



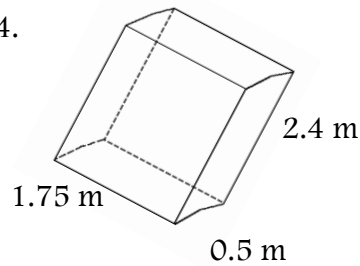
2.



3.



4.



5. length, 8 mm  
width, 12 mm  
height, 10 mm

6. length, 9 ft  
width, 7 ft  
height, 12.5 ft

7. length, 7.6 in.  
width, 8.4 in.  
height, 15 in.

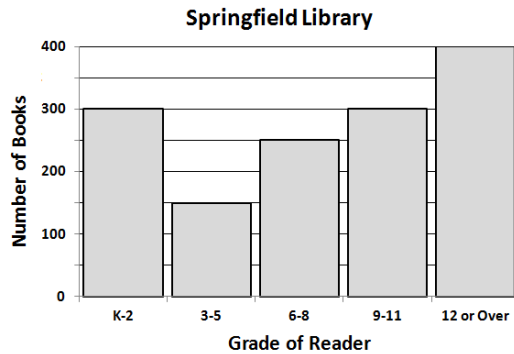
8. length, 18.3 cm  
width, 27 cm  
height, 21 cm

9. A cube has sides that are 9.2 inches long. What is the volume of the cube?

# Histograms

A histogram is a graph that shows how many items occur between two numbers.

The Springfield Library has books arranged by grade level.



How many books are there for grades 6-11?

Find the number of books for grades 6-8.	250
Find the number of books for grades 9-11.	300
Add to find the books for grades 6-11.	$250 + 300 = 550$

There are 550 books for grades 6-11.

Use the histogram above to answer each question.

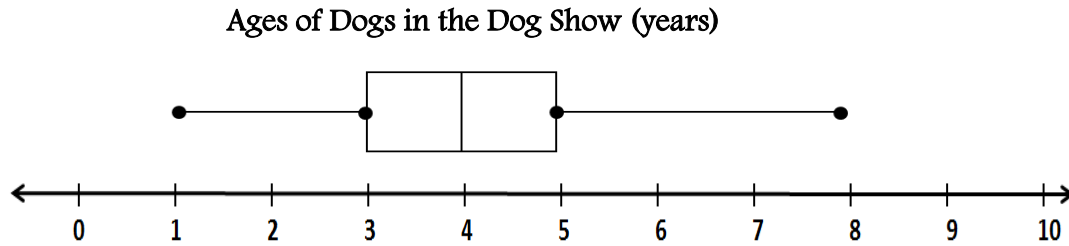
1. How many books are there for grades 3-5?
2. Which grade levels have the greatest number of books?
3. Which grade levels have the fewest number of books?
4. How many books are there for students in grade 6 and above?
5. How many books are in the Springfield Library?

## Critical Thinking

What percent of all of the books in the histogram are for grades 9 and above?

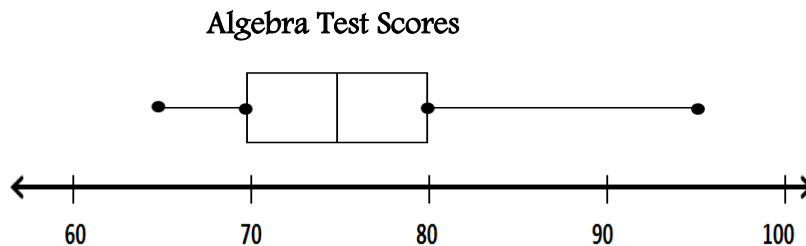
## Worksheet – BOX-AND-WHISKER PLOTS

A. Use the Box-and-Whisker Plot to Answer Questions 1-5



1. What is the age of the oldest dog(s) in the show?
2. What is the median age of the dogs?
3. What number is the lower quartile?
4. What is the inter-quartile range?
5. About what fraction of the dogs are 5 years old or older?

B. Use the Box-and-Whisker Plot to Answer Questions 6-10



6. What is the median of all scores?
7. What number is the lower quartile?
8. What percent of the scores are between 70% and 80%?
9. What fraction of the scores fall between 80% and 95%?
10. What is the range of the test scores?

# Equivalent Ratios

---

1. 

7		
5		

2. 

8		
7		

3. 

2		
5		

4. 

3		
5		

5. 

7		
12		

6. 

7		
4		

---

Determine whether the ratios are equivalent.

7.  $\frac{6}{7}$  and  $\frac{18}{21}$  \_\_\_\_\_

8.  $\frac{12}{11}$  and  $\frac{24}{22}$  \_\_\_\_\_

9.  $\frac{4}{5}$  and  $\frac{16}{20}$  \_\_\_\_\_

10.  $\frac{9}{4}$  and  $\frac{11}{5}$  \_\_\_\_\_

11.  $\frac{7}{9}$  and  $\frac{5}{3}$  \_\_\_\_\_

12.  $\frac{5}{7}$  and  $\frac{15}{21}$  \_\_\_\_\_

---

Use equivalent ratios to find the unknown value.

13.  $\frac{25}{c}$  and  $\frac{5}{8}$   $c =$  \_\_\_\_\_

14.  $\frac{50}{c}$  and  $\frac{10}{11}$   $c =$  \_\_\_\_\_

15.  $\frac{r}{14}$  and  $\frac{2}{7}$   $r =$  \_\_\_\_\_

16.  $\frac{r}{44}$  and  $\frac{5}{11}$   $r =$  \_\_\_\_\_

17.  $\frac{7}{6}$  and  $\frac{49}{h}$   $h =$  \_\_\_\_\_

18.  $\frac{11}{12}$  and  $\frac{a}{84}$   $a =$  \_\_\_\_\_

# Why Did Bonzo Hit His Sister During the Game?

Find the unit price of each item described. Round each price to the nearest cent.  
Write the letter of each exercise above its answer.

- |  |  |
|--|--|
| <p>Ⓘ 5 lb of potatoes for \$2.19<br/>\$ _____ per lb</p> <p>Ⓔ 200 ft of foil for \$6.24<br/>\$ _____ per ft</p> <p>Ⓐ 36 oz of peanut butter for \$4.39<br/>\$ _____ per oz</p> <p>Ⓗ 18 issues of a magazine for \$28.90<br/>\$ _____ per issue</p> <p>Ⓔ 1 dozen doughnuts for \$4.50<br/>\$ _____ per doughnut</p> <p>Ⓦ 22 oz of cereal for \$3.67<br/>\$ _____ per oz</p> | <p>Ⓐ 60 oz of honey for \$4.89<br/>\$ _____ per oz</p> <p>Ⓓ 1 dozen roses for \$29.75<br/>\$ _____ per rose</p> <p>Ⓔ 25 greeting cards for \$7.95<br/>\$ _____ per card</p> <p>Ⓙ 147 oz of detergent for \$9.27<br/>\$ _____ per oz</p> <p>Ⓗ 7 tennis lessons for \$99<br/>\$ _____ per lessons</p> <p>Ⓡ 3.5 lb of cheese for \$8.94<br/>\$ _____ per oz</p> |
|--|--|

1.61	0.03	0.41	14.14	0.32	0.08	2.55	2.48	0.19	0.44	0.06	2.67	0.17	0.12	0.38

## Ketchup

- Ⓔ 14 oz for \$0.99 \$ \_\_\_\_\_ per oz
- Ⓐ 64 oz for \$3.10 \$ \_\_\_\_\_ per oz

## Chocolate Candy Bar

- Ⓚ 165 oz for \$0.50 \$ \_\_\_\_\_ per oz
- Ⓐ 8 oz for \$1.95 \$ \_\_\_\_\_ per oz

## Solve

- Ⓗ A monthly magazine charges \$17.40 for a one-year subscription (12 issues). The same magazine sells at the newsstand for \$2.00 a copy. How much do you save on *each issue* by buying a subscription?
- Ⓡ A season ticket to the Olde Theatre costs \$76 and admits you to 6 plays. Single tickets to each play cost \$15. How much do you save on each play by buying a season ticket?

## Fried Chicken

- Ⓞ 5 pieces for \$4.79 \$ \_\_\_\_\_ per piece
- Ⓔ 21 pieces for \$18.77 \$ \_\_\_\_\_ per piece

## Candy

- Ⓖ 30 pieces for \$2.59 \$ \_\_\_\_\_ per piece
- Ⓜ 165 pieces for \$7.28 \$ \_\_\_\_\_ per piece

- Ⓔ A sports store pays \$380 for a case of 144 baseball. The store sells the baseballs for \$4.75 each. How much less is their cost than their selling cost for each ball?
- Ⓒ For film and processing, a 36-exposure roll of film costs \$19.20. A 24-exposure roll costs \$16.40. How much can you save per picture by choosing the better buy?

0.24	0.02	2.11	0.96	0.15	0.30	2.16	0.55	0.07	2.33	0.46	0.09	0.05	0.04	0.89

## Ratio Word Problems

1. An ice cream factory makes 220 quarts of ice cream in 5 hours. How many quarts could be made in 12 hours? What was the rate per day? \_\_\_\_\_

2. The bakers at Healthy Bakery can make 150 bagels in 2 hours. How many bagels can they bake in 14 hours? What was that rate per hour? \_\_\_\_\_

3. You can buy 3 apples at the Quick Market for \$1.14. You can buy 5 of the same apples at the Stop and Save for \$2.45. Which place is the better buy? \_\_\_\_\_

4. A ferris wheel can accommodate 75 people in 30 minutes. How many people could ride the ferris wheel in 6 hours? What was that rate per hour? \_\_\_\_\_

5. A jet travels 470 miles in 5 hours. At this rate, how far could the jet fly in 8 hours? What is the rate of speed of the jet? \_\_\_\_\_

6. You can buy 5 cans of green beans at the Village Market for \$4.00. You can buy 10 of the same cans of beans at Joe's Market for \$7.10. Which place is the better buy? \_\_\_\_\_

7. Gas mileage is the number of miles you can drive on a gallon of gasoline. A test of a new car results in 590 miles on 20 gallons of gas. How far could you drive on 50 gallons of gas? What is the car's gas mileage? \_\_\_\_\_