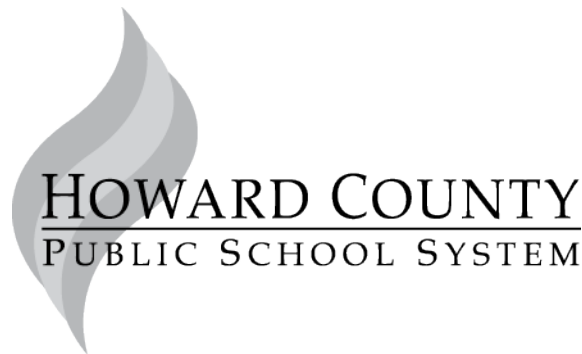


**A Summer Guide  
For Students  
Entering Middle  
School  
Mathematics II**



**Warehouse #39502139**

# **Board of Education of Howard County**

Ellen Flynn Giles  
Chairman

Frank Aquino  
Vice Chairman

Larry Cohen

Allen Dyer

Sandra H. French

Patricia S. Gordon

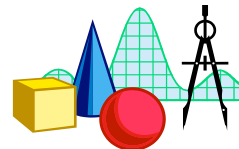
Janet Siddiqui

Sydney L. Cousin  
Superintendent of Schools

Copyright 2010

The Howard County Public School System  
Ellicott City, Maryland 21042

# INTRODUCTION



Teachers and administrators in the Howard County Public School System actively encourage parents and community members to engage in children's learning. This guide *A Summer Guide for Students Entering Middle School Mathematics II* has been developed to assist friends, family, school system, and community members as a resource in working together to help students reach their full potential.

- The booklet has been designed to provide practice of the mathematics knowledge needed by students entering MSM II mathematics. The Howard County Office of Mathematics suggests that students complete this booklet during the summer to maintain mathematics skills and knowledge. Completion of this booklet over the summer, though optional, will be of great value to helping students successfully meet the academic challenges awaiting them in MSM II mathematics.

Included in this booklet are the following:

- A table consisting of Middle School Math I instructional objectives with appropriate clarifying examples, cross-references to the Maryland Voluntary State Curriculum, and references to tools on the internet found in the SMART pages at [www.hcpss.org/smart](http://www.hcpss.org/smart).
- A set of practice questions emphasizing different objectives from the Middle School Math I curriculum.
- Answers to the practice questions.

How to use this book:

- Students are requested to work in pencil and show their work in the booklet or on lined paper to accompany the booklet. They should check their answers using the key provided and, if possible, correct the work for problems solved incorrectly.

Parents/Guardians are encouraged to use the many resources made available by the Howard County Office of Mathematics and other community resources. Among these are:

- The Secondary Mathematics website <http://hcpss.org/smart>.
- The Howard County Public Library's website allows free access to *Live Homework Help*, offering assistance at all levels of secondary mathematics.

## ACKNOWLEDGEMENTS

*A Summer Guide for Parents and Students Entering Middle School Mathematics II* is the result of ongoing planning and development by the staff of the Howard County Secondary Mathematics Office. This guide was authored by Roberta Girardi and Sue Pope and edited by Octavia Cutsail and Lindsay Madden under the direction of William Barnes.

# GRADE 6 MATHEMATICS GOALS

## Standard 1.0 Knowledge of Algebra, Patterns, and Functions

Instructional Objectives-Students will be able to:	MSA Assessment Limits	Clarifying Examples	SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a>										
Interpret and write a rule for a one-operation (+, -, x, ÷) function table (1.A.1.b)	Use whole numbers or decimals with no more than two decimal places (0 - 10,000)	Example: Find the rule of the function machine below. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>28</td> <td>7</td> </tr> <tr> <td>32</td> <td>8</td> </tr> <tr> <td>36</td> <td>9</td> </tr> <tr> <td>40</td> <td>10</td> </tr> </tbody> </table> Rule: $\frac{x}{4}$	x	y	28	7	32	8	36	9	40	10	Quarter 2    Unit 4  eTools: <i>Algebra Balance</i>  <i>Algebra Tiles</i>  Quarter 2    Unit 5  eTools: <i>Function Machine</i>  <i>Number Cruncher</i>
x	y												
28	7												
32	8												
36	9												
40	10												
Complete a function table given a two-operation rule (1.A.1.c)	Use the operations of (+, -, x) and whole numbers with no more than 10 in the rule, and whole numbers (0 - 50)	Complete the function table below.  Rule: $3x + 2$ <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>5</td> </tr> <tr> <td>2</td> <td>8</td> </tr> <tr> <td>3</td> <td>11</td> </tr> <tr> <td>4</td> <td>14</td> </tr> </tbody> </table>	x	y	1	5	2	8	3	11	4	14	Quarter 2    Unit 4  eTools: <i>Algebra Balance</i>  <i>Algebra Tiles</i>  Quarter 2    Unit 5  eTools: <i>Function Machine</i>  <i>Number Cruncher</i>
x	y												
1	5												
2	8												
3	11												
4	14												

Instructional Objectives– Students will be able to:	MSA Assessment Limits	Clarifying Examples	SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a>
Write an algebraic expression to represent unknown quantities (1.B.1.a)	Use one unknown and one operations (+, -), with whole numbers, fractions with denominators as factors of 24, or decimals with no more than 2 decimal places (0–200)	<p>Three more than the amount George (<math>g</math>) has  <math>3 + g</math></p> <p>A number decreased by 6  <math>n - 6</math></p>	
Evaluate numeric expressions using the order of operations (1.B.1.c)	Use no more than 4 operations (+, -, x, ÷ with no remainders) and 1 set of parentheses and/or a division bar (0 – 100)	<p>Example 2: Evaluate  <math>(17 + 6) - 2 \times 10</math>.  <math>(17 + 6) - 2 \times 10</math>  <math>23 - 2 \times 10</math>  <math>23 - 20</math>  <math>3</math></p>	<p>Quarter 2    Unit 4</p> <p>Quizzes and Tests:  <i>Order of Operations</i>  <i>Online Quiz</i></p>

## PRACTICE SET 1

1. Write the rule for the function table below.

$n$	?
2	8
5	20
6	24
9	36

2. Write the rule for the function table below.

$n$	?
2.7	0.3
4.5	0.5
5.4	0.6
8.1	0.9

3. Write the rule for the function table below.

$n$	?
0	0
5	1
10	2
15	3

4. Write the rule for the function table below.

$n$	?
10.25	41
100.25	401
200.25	801
300.25	1201

5. Complete the function table below.

$n$	$n \times 2 - 1$
8	15
11	21
15	29
22	

6. Complete the function table below.

$n$	$3 \times n + 1$
9	28
12	37
13	
15	46

7. Complete the function table below.

$n$	$3 \times n - 4$
7	17
11	29
13	35
15	

8. Complete the function table below.

$n$	$2 \times n - 3$
5	7
7	
9	15
11	19

9. The tank of Molly's motorcycle holds  $n$  gallons of gas. Today Molly bought 4.25 gallons of gas. Write an expression that represents the amount of gas that was in the tank before she filled it.
10. Lily and 4 friends split the cost of breakfast evenly. Write an expression for how much each person spent for breakfast. Use  $n$  for the cost of breakfast.
11. Jon is 6 years older than Monique. If  $n$  is Monique's age, write an expression for Jon's age.
12. Every day Marshall buys the same lunch. Write an expression for the cost of lunch for 5 days. Use  $n$  to represent the cost of lunch for one day.

13. Simplify according to the order of operations.  $\frac{5}{9} \times 3 + \frac{2}{9}$

14. Simplify according to the order of operations.  $20 - 12 \div 4 + 2$

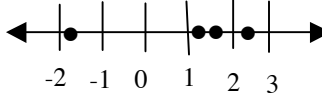
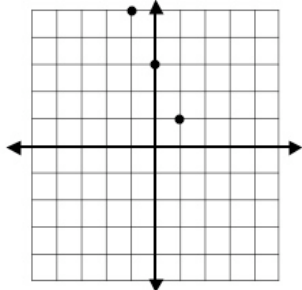
15. Simplify according to the order of operations.  $12 - 2 \times 3 + 11$

16. Simplify according to the order of operations.  $42 \div 7 \times 5 - 6 + 3$

# GRADE 6 MATHEMATICS GOALS

## Standard 1.0 Knowledge of Algebra, Patterns, and Functions

Instructional Objectives-Students will be able to:	MSA Assessment Limits	Clarifying Examples	SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a>
Identify and write equations and inequalities to represent relationships (1.B.2.a)	Use a variable, the appropriate relational symbols (>, <, =), and one operational symbol (+, -, x, ÷) on either side and use fractions with denominators as factors of 24 (0-50), or decimals with no more than two decimal places (0 - 200)	<p>Example 1: \$12 more than the sale price is \$66. Write an equation that represents this situation.</p> $x = \text{sale price}$ $x + 12 = \$66$ <p>Example 2: Three dozen roses cost \$75. Write an equation to represent the price of one dozen roses.</p> $x = \text{cost of one dozen roses}$ $3x = \$75$ $x = \$25$	
Determine the unknown in a linear equation (1.B.2.b)	Use one operation (+, -, x, ÷ with no remainders) and use positive whole number coefficients using decimals with no more than two decimal places (0 - 100)	<p>Example 2: Solve for <math>y</math>.</p> $2.5 = y + 0.9$ $2.5 - 0.9 = y + 0.9 - 0.9$ $1.6 = y$ <p>Check your solution.</p> $2.5 = y + 0.9$ $2.5 = 1.6 + 0.9$ $2.5 = 2.5$	<p>Quarter 2    Unit 4</p> <p>eTools:</p> <p style="padding-left: 40px;"><i>Algebra Balance</i></p> <p style="padding-left: 40px;"><i>Algebra Tiles</i></p> <p>Videocasts:</p> <p style="padding-left: 40px;"><i>Solving Equations</i></p> <p style="padding-left: 40px;"><i>BrainPop</i></p>

Instructional Objectives-Students will be able to:	MSA Assessment Limits	Clarifying Examples	SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a>
Represent rational numbers on a number line (1.C.1.a)	Use integers (-20 to 20)	Represent the following numbers on a number line. $\frac{11}{8}$ , -1.88, 1.5, $\frac{5}{2}$ 	Quarter 2      Unit 3  Web: <i>Comparing Numbers</i>
Graph ordered pairs in a coordinate plane (1.C.1.B)	Use no more than 3 ordered pairs of integers (-20 to 20) or no more than 3 ordered pairs of fractions/mixed numbers with denominators of 2 (-10 to 10)	Plot the three ordered pairs (-1, 5), (0, 3), (1, 1) on the graph below. 	Quarter 2      Unit 3  eTools: <i>Coordinate Plot (Simple Plot)</i>
Identify and describe the change represented in a graph (1.C.2.a)	Identify an increase, decrease, or no change	Three types of changes between two variables: 1. As one variable increases, the other variable increases also. 2. As one variable increases, the other variable decreases. 3. As one variable increases, the other variable does not change (stays constant).	

## PRACTICE SET 2

1. Jane bought some CD's. Each CD cost \$3.90 and the total cost of the CDs was \$15.60. If  $c$  represents each CD purchased, write an equation to represent this situation.
2. The length of a rectangular classroom is 7 meters. The area is 70 square meters. If  $w$  represents the width of the room, write an equation to represent this situation.
3. When  $n$  is divided by 14, the result is less than 276. Write an inequality to represent this statement.
4. One lap around the track is  $\frac{3}{4}$  mile. If you want to run for at least  $4\frac{1}{4}$  miles write an inequality to find  $n$ , the number of laps that you would have to run.
5. Allison was in charge of the Ice Cream Party for the sixth grade. She purchased half-gallons of ice cream. When she got to school she noticed that four were melting and had to be thrown away. Let  $n$  represent the total number of half gallons of ice cream purchased.

Solve the equation  $n - 4 = 14$  to determine the number of half gallons of ice cream purchased.

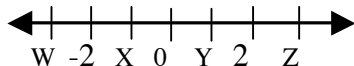
6. Solve the following proportion:

$$\frac{4}{n} = \frac{48}{60}$$

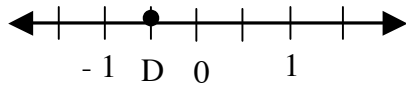
7. Solve.  $10.3 + n = 17$

8. Solve.  $50.4 = 2 \times n$

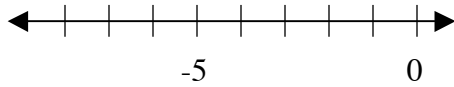
9. Which point represents  $-3$ ?



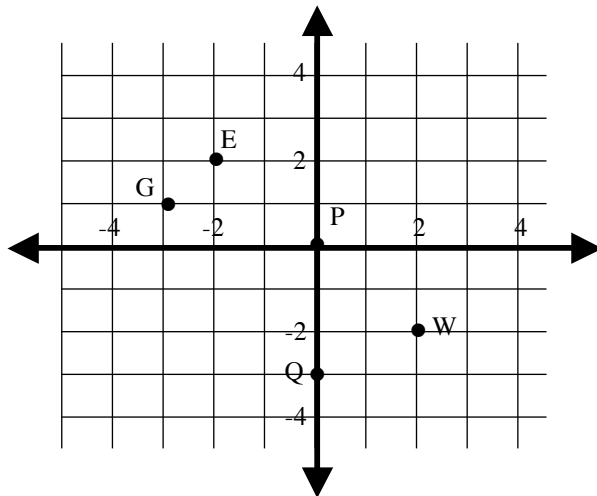
10. D represents which number?



11. Graph  $-7$  on the number line.



Use the following graph for items 12 and 13.

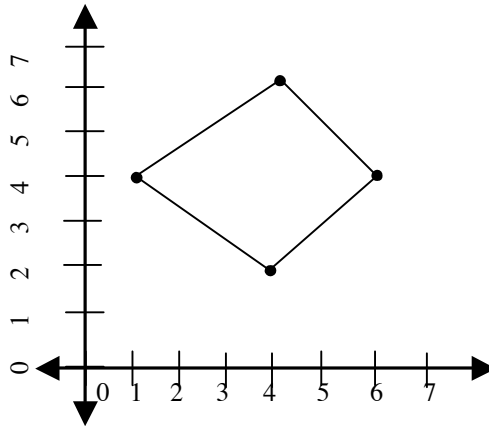


12. Which point represents  $(-2, 2)$ ?

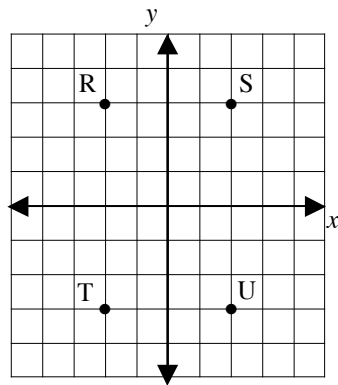
13. Name the ordered pair for point G.

14. Which of the following is not a vertex of the polygon?

- A. (1, 4)
- B. (3, 4)
- C. (4, 2)
- D. (6, 4)

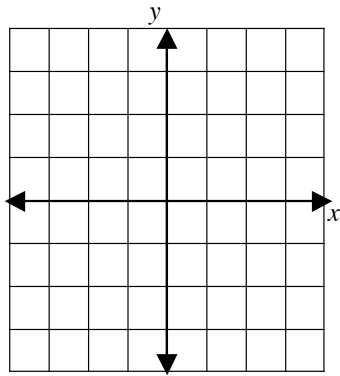


15. Which letter identifies the point (2, -3)?

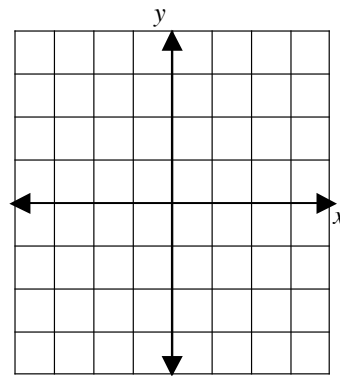


16. Draw the graph of an increasing function, decreasing function, and constant function.

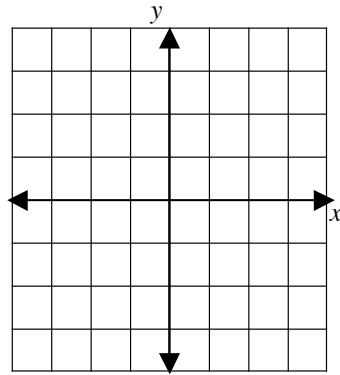
A. increasing



B. decreasing

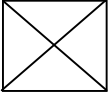
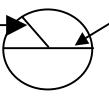


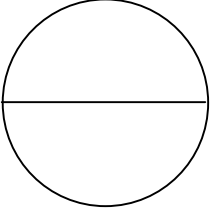
C. constant



# GRADE 6 MATHEMATICS GOALS

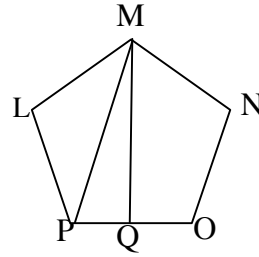
## Standard 2.0 Knowledge of Geometry

Instructional Objectives-Students will be able to:	MSA Assessment Limits	Clarifying Examples	SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a>
Identify and describe line segments (2.A.1.b)	Use diagonal line segments		
Identify and describe the parts of a circle (2.A.1.c)	Use radius, diameter, or circumference	 <p style="text-align: center;"><math>C = \pi d</math> or <math>2\pi r</math></p>	
Compare and classify triangles by sides (2.A.2.a)	Use scalene, equilateral, or isosceles	Scalene – no congruent sides Equilateral – 3 congruent sides Isosceles – 2 congruent sides	Quarter 3 Unit 6  eTools: <i>Triangle Tool</i> <i>(Congruent Triangles)</i>
Compare and classify triangles by angle measure (2.A.2.b)	Use equiangular, obtuse, acute, or right	Acute – all angles acute Equiangular – all angles congruent Obtuse – one obtuse angle Right – one angle right	Quarter 3 Unit 6  eTools: <i>Triangle Tool</i> <i>(Congruent Triangles)</i>
Determine a third angle measure of a triangle given two angle measures (2.A.2.c)	Use the concept of the sum of angles in any triangle is $180^\circ$ without using a diagram	A triangle has a $60^\circ$ angle and $45^\circ$ angle, what is the measure of the other angle? $180 - 60 - 45 = 75^\circ$	

Instructional Objectives-Students will be able to:	MSA Assessment Limits	Clarifying Examples	SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a>
Identify and compare the relationship between parts of a circle 2.A.2.d	Use radius, diameter or circumference ( $\pi=3.14$ )	<p>The circle below has a diameter of 4.6 cm.</p>  <p>Part A What is the radius of the circle? 2.3 cm</p>	

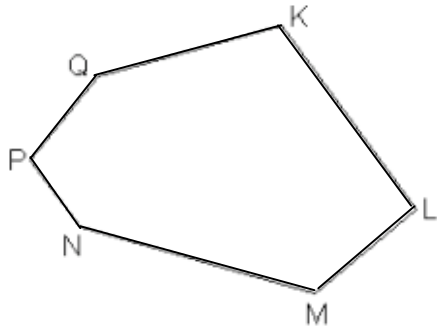
### PRACTICE SET 3

1. Name the diagonal drawn in the pentagon LMNOP.

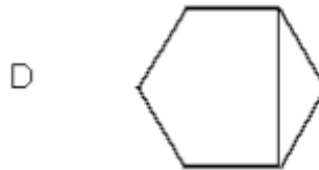


2. Jamal draws hexagon KLMNPQ, as shown below.

What is the greatest amount of diagonals Jake can draw from any one vertex?

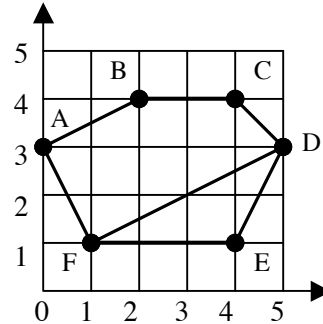


3. Look at the line segments drawn in each geometric figure below. Which geometric figure shows a line segment that is also a diagonal?

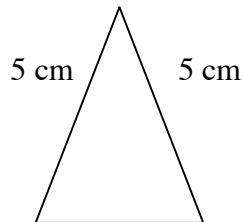


4. Which set of coordinates correctly identifies the endpoints of the diagonal of hexagon ABCDEF in the diagram below?

- A. (5,1) and (5,3)
- B. (5,3) and (4,4)
- C. (1,1) and (5,3)
- D. (1,1) and (0,3)

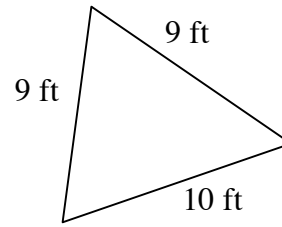


5. What is the radius of a circle with diameter 10 feet?
6. Identify the term used to describe the distance around a circle?
7. What is the diameter of a circle if the radius is 3.5 feet?
8. Classify the triangle below by the length of its sides.



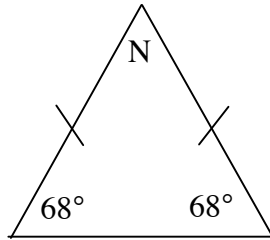
9. A triangle has a side length of 6 inches, 8 inches, and 10 inches. Classify the triangle by the length of its sides. (scalene, equilateral, isosceles)
10. A given triangle has angle measures of  $62^\circ$ ,  $48^\circ$ , and  $70^\circ$ . According to these measurements how would you classify the triangle? (acute, obtuse, right)

11. Classify the triangle by its angles and sides.



12. Triangle DEF has angle D measuring  $13^\circ$  and angle E measuring  $92^\circ$ . What is the measurement of angle F?

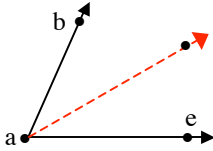
13. Determine the missing angle in the triangle below.



14. In  $\triangle DEF$ ,  $\angle D$  is at a right angle and  $m\angle E=42^\circ$ . What is  $m\angle F$ ?
15. Triangle JKL has a  $48^\circ$  angle and a  $19^\circ$  angle. What is the measure of the third angle?
16. The measure of the first angle of a triangle is  $50^\circ$ . The measure of the second angle is  $32^\circ$ . What is the measure, in degrees, of the third angle?

# GRADE 6 MATHEMATICS GOALS

## Standard 2.0 Knowledge of Geometry

Instructional Objectives-Students will be able to:	MSA Assessment Limits	Clarifying Examples	SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a>
Draw geometric figures using a variety of tools (2.C.1.a)	Draw triangles given the measure of 2 sides and one angle or 2 angles and 1 side using whole numbers (0-20) and angle measures ( $0^\circ$ - $179^\circ$ )		
Identify, describe, and draw a polygon (2.C.1.b)	Use the first quadrant given no more than 6 coordinates		
Identify or describe angles relationships (2.A.1.c)	Use perpendicular bisectors or angles bisectors	$\angle bae = 80^\circ$ $\overline{ac}$ bisects $\angle bae$ $\angle bac = 40^\circ$	

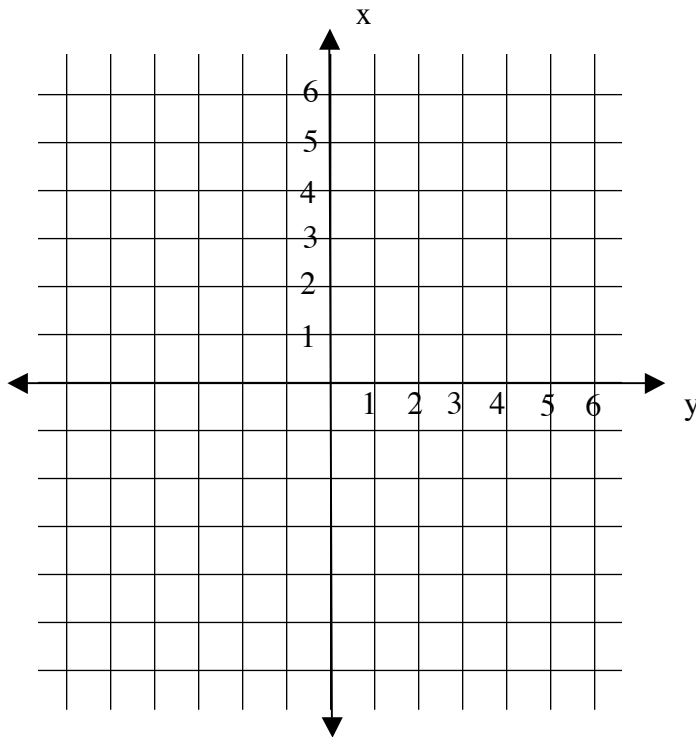
### PRACTICE SET 4

1. The triangle ABC has the following measurements.

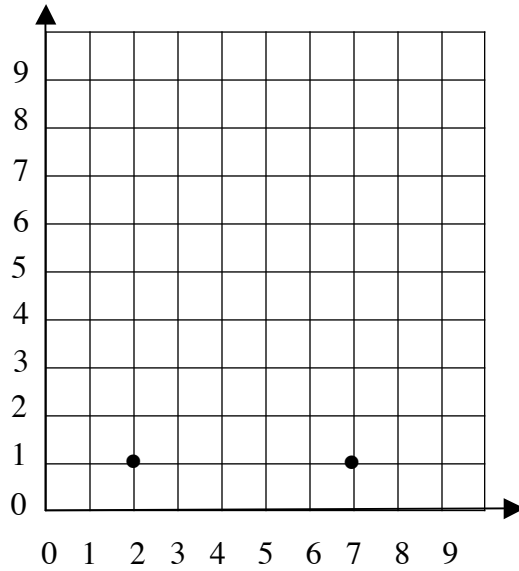
$AB = 2$  in,  $BC = 3$  in, and  $m\angle B$  is  $52^\circ$

Draw  $\triangle ABC$

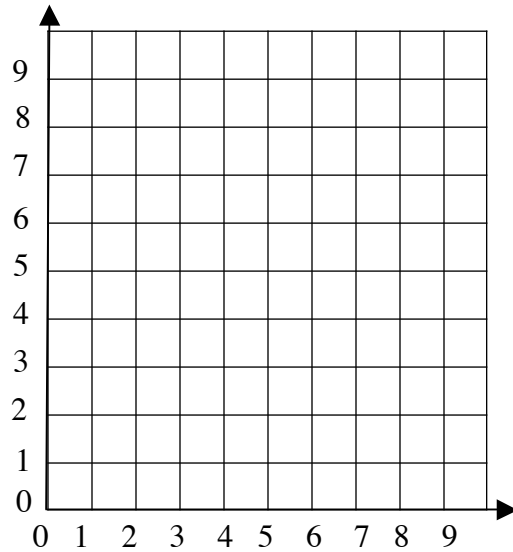
2. Maurice is given the coordinates of four points (1, 6), (6, 6), (5, 1), and (2, 1).  
If he connects the points together, what quadrilateral is created?



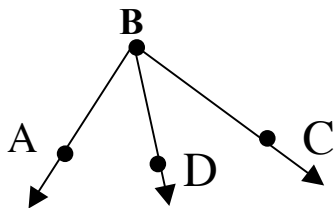
3. 3. The coordinate plane below has two vertices plotted. Use these points to draw an isosceles triangle.



4. Draw a polygon on the coordinate plane below. The vertices of the polygon are (1,1), (4, 1), (5,2), (4,5), and (1,4). What is the name of this polygon?

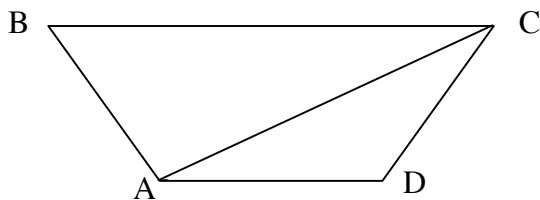


5. In the diagram below,  $\overline{BD}$  bisects  $\angle ABC$ .

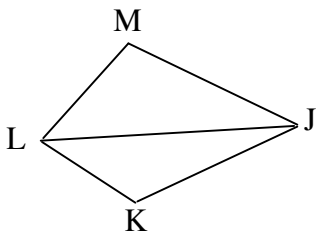


Which statement about  $\angle ABD$  and  $\angle CBD$  must be true.

- A.  $m\angle ABD = m\angle CBD$ .
  - B.  $m\angle ABD = m\angle ABC$
  - C.  $m\angle ABD + m\angle CBD = 90^\circ$
6. In the diagram below,  $\overline{AC}$  bisects  $\angle BCD$ . If  $m\angle BCD = 52^\circ$ , what is  $m\angle ACD$ ?



7. In the diagram below,  $\overline{LJ}$  bisects  $\angle MJK$ . If  $m\angle MJL = 20^\circ$ , what is the  $m\angle MJK$ ?



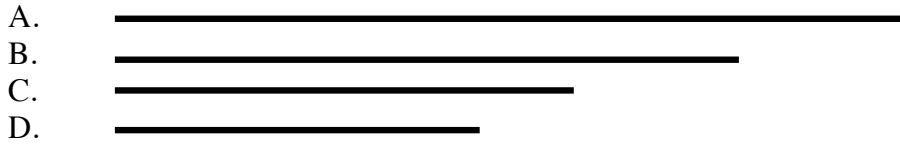
# GRADE 6 MATHEMATICS GOALS

## Standard 3.0 Knowledge of Measurement

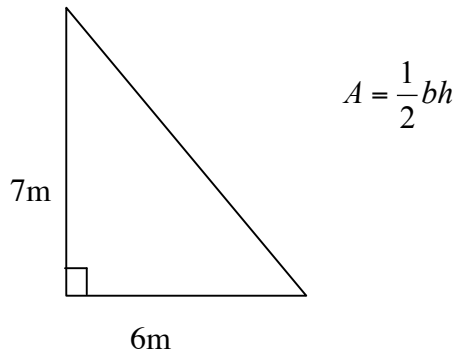
<b>Instructional Objectives- Students will be able to:</b>	<b>MSA Assessment Limits</b>	<b>Clarifying Examples</b>	<b>SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a></b>
Select and use appropriate tools and units (3.B.1.a)	Measure the length to the nearest $\frac{1}{16}$ with a ruler.		
Estimate and determine the area of a polygon (3.C.1.a)	Use triangles and whole number dimensions (0-200)	area of a triangle = $\frac{1}{2} \times \text{base} \times \text{height}$	
Estimate and determine the volume of a rectangular prism (3.C.1.b)	Use rectangular prisms and whole number dimensions (0-1000)	volume = length $\times$ width $\times$ height	

**PRACTICE SET 5**

1. Which line is closest to  $3\frac{3}{16}$  inches in length?

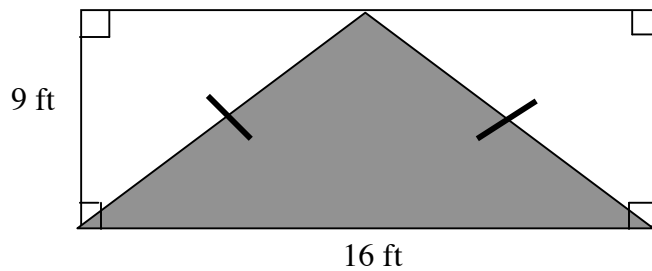


2. Use the formula for the area of a triangle to find the area of the triangle below.



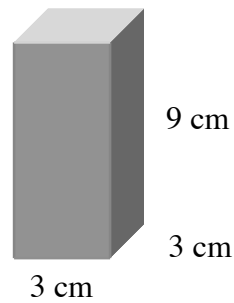
3. What is the area of a triangle with a base of 15 m and a height of 6 m?

4. What is the area of the shaded triangle?



5. The school is going to build a concrete patio for the students to use during lunch. Concrete is measured in cubic yards. The dimensions of the patio are to be 12 yards wide, 6 yards long, and 0.5 yards deep. How much concrete will be needed?

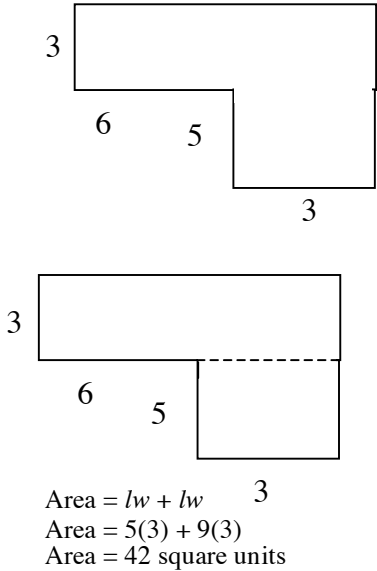
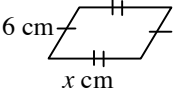
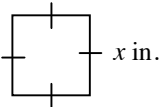
6. What is the volume of the figure below?



7. The cargo space in a trunk is 6 meters long, 3 meters wide, and 2 meters tall. What is the volume of the space?

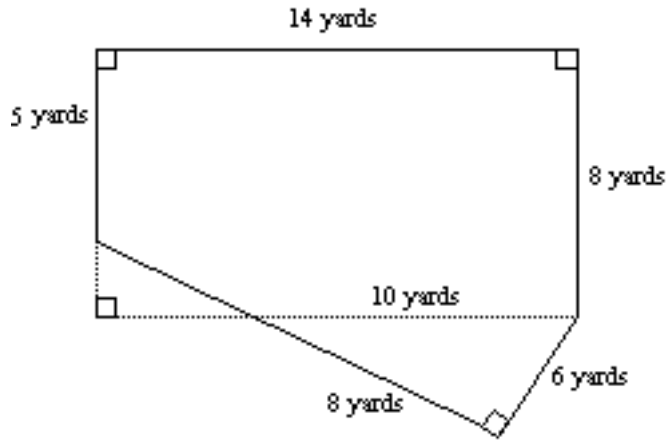
# GRADE 6 MATHEMATICS GOALS

## Standard 3.0 Knowledge of Measurement

Instructional Objectives-Students will be able to:	MSA Assessment Limits	Clarifying Examples	SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a>
Estimate and determine the area of a composite figure (3.C.1.c)	Use composite figures with no more than 4 polygons (triangles or rectangles) and whole number dimensions (0-500)	<p>Find the area of the figure below.</p>  <p style="text-align: center;"> <math>Area = lw + lw</math>  <math>Area = 5(3) + 9(3)</math>  <math>Area = 42 \text{ square units}</math> </p>	
Determine the missing dimension of a quadrilateral given the perimeter length (3.C.1.d)	Find the length in a quadrilateral given the perimeter with whole number dimensions (0-200)	<p>perimeter = 32 cm</p> 	<p>Quarter 3 Unit 7 Activities: <i>Perimeter Explorer</i></p> <p>eTools: <i>Geoboard</i></p>
Determine the missing dimension of rectangles (3.C.1.e)	Find the length in a square or rectangle given the area and whole number dimensions (0-200)	<p>area = 9 sq. in.</p> 	<p>Quarter 3 Unit 7 Activities: <i>Area Explorer</i></p> <p>eTools: <i>Geoboard</i></p> <p>Videocasts: <i>Area of Polygons BrainPOP</i></p>

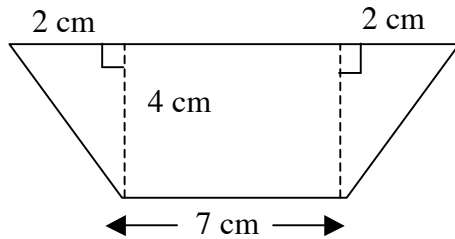
### PRACTICE SET 6

1. A diagram of Marty's yard is shown below. The figure is not drawn to scale.

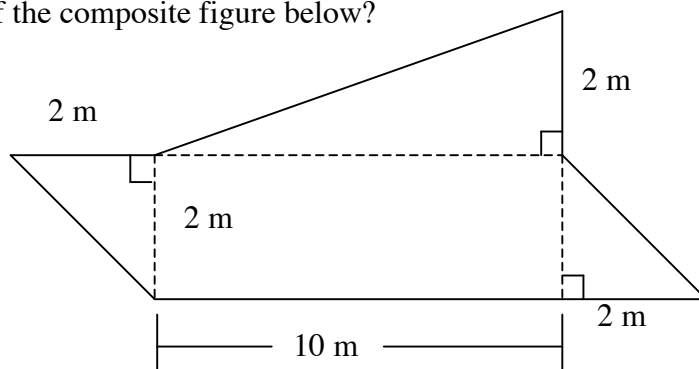


What is the area, in square yards of Marty's yard?

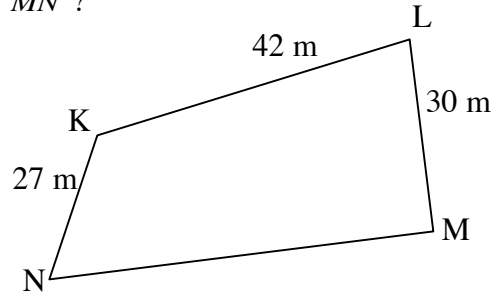
2. What is the area of the composite figure below?



3. What is the area of the composite figure below?

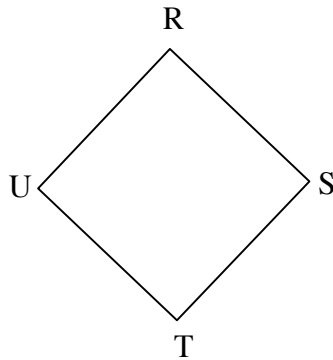


4. The perimeter of quadrilateral KLMN, as shown below, is 157 meters. What is the measure in meters of  $\overline{MN}$  ?



5. Find the length of a rectangle with width of 5 inches and perimeter of 40 inches.

6. Look at square RSTU shown below. The perimeter of RSTU is 144 inches. What is the measure of  $\overline{ST}$  ?



7. A rectangular basketball court has an area of 4,800 square feet. The width of the court is 50 feet. What is the length?

8. A rectangle has a width of 15 meters and an area of 270 meters<sup>2</sup>. What is the length of the rectangle?

9. The area of a square swimming pool is 81 feet. What is the length of one side?

# GRADE 6 MATHEMATICS GOALS

## Standard 4.0 Knowledge of Statistics

Instructional Objectives-Students will be able to:	MSA Assessment Limits	Clarifying Examples	SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a>												
Organize and display data to make frequency tables (4.A.1.a)	Use no more than 5 categories or ranges of numbers and total frequencies of no more than 25	Make a frequency of the following test scores. 60, 52, 78, 99, 90, 55, 69, 82, 89, 71, 76, 83, 92 <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Range of Scores</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>50-59</td> <td>2</td> </tr> <tr> <td>60-69</td> <td>2</td> </tr> <tr> <td>70-79</td> <td>3</td> </tr> <tr> <td>80-89</td> <td>3</td> </tr> <tr> <td>90-99</td> <td>3</td> </tr> </tbody> </table>	Range of Scores	Frequency	50-59	2	60-69	2	70-79	3	80-89	3	90-99	3	
Range of Scores	Frequency														
50-59	2														
60-69	2														
70-79	3														
80-89	3														
90-99	3														
Organize and display data to make stem-and-leaf plots (4.A.1.b)	Use no more than 20 data points and whole numbers (0-999)	<table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="border-right: 1px solid black;">Stem</th> <th>Leaf</th> </tr> </thead> <tbody> <tr> <td style="border-right: 1px solid black;">0</td> <td>8</td> </tr> <tr> <td style="border-right: 1px solid black;">1</td> <td>2 4</td> </tr> <tr> <td style="border-right: 1px solid black;">2</td> <td>1 5 5</td> </tr> <tr> <td colspan="2" style="text-align: center;">1   2 = 12</td> </tr> </tbody> </table>	Stem	Leaf	0	8	1	2 4	2	1 5 5	1   2 = 12				
Stem	Leaf														
0	8														
1	2 4														
2	1 5 5														
1   2 = 12															
Interpret frequency tables (4.B.1.a)	Use no more 5 categories or ranges of numbers and frequencies of no more than 25	<p style="text-align: center;">Votes for Class President</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Candidates</th> <th>Number of Votes</th> </tr> </thead> <tbody> <tr> <td>Fina</td> <td>15</td> </tr> <tr> <td>Maddie</td> <td>9</td> </tr> <tr> <td>Miguel</td> <td>8</td> </tr> <tr> <td>Monica</td> <td>6</td> </tr> <tr> <td>Allison</td> <td>7</td> </tr> </tbody> </table> <p>How many students voted? 45 students</p>	Candidates	Number of Votes	Fina	15	Maddie	9	Miguel	8	Monica	6	Allison	7	
Candidates	Number of Votes														
Fina	15														
Maddie	9														
Miguel	8														
Monica	6														
Allison	7														

<b>Instructional Objectives-Students will be able to:</b>	<b>MSA Assessment Limits</b>	<b>Clarifying Examples</b>	<b>SMART Resources</b> <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a>												
Read and analyze circle graphs (4.B.1.b)	Use no more than 5 categories using data in whole numbers or percents (0-1000)	<p>What is the measure of the central angle that represents students who like Other music?</p> $0.10 \times 360 = 36$ <p style="text-align: center;"><b>Favorite Music</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>Favorite Music Data</caption> <thead> <tr> <th>Music Type</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Rap</td> <td>37%</td> </tr> <tr> <td>Rock</td> <td>24%</td> </tr> <tr> <td>Country</td> <td>18%</td> </tr> <tr> <td>Jazz</td> <td>11%</td> </tr> <tr> <td>Other</td> <td>10%</td> </tr> </tbody> </table>	Music Type	Percentage	Rap	37%	Rock	24%	Country	18%	Jazz	11%	Other	10%	
Music Type	Percentage														
Rap	37%														
Rock	24%														
Country	18%														
Jazz	11%														
Other	10%														

## PRACTICE SET 7

1. Pascal records the scores from a basketball team's last 24 games, as shown below.

<b>74</b>	<b>69</b>	<b>69</b>	<b>68</b>	<b>83</b>	<b>68</b>	<b>74</b>	<b>69</b>
<b>81</b>	<b>78</b>	<b>64</b>	<b>62</b>	<b>68</b>	<b>61</b>	<b>77</b>	<b>71</b>
<b>78</b>	<b>68</b>	<b>77</b>	<b>69</b>	<b>62</b>	<b>61</b>	<b>76</b>	<b>69</b>

He displays the scores in this frequency table. Pascal's frequency table contains an error.

<b>Range of Scores</b>	<b>Frequency</b>
<b>60 – 64</b>	<b>4</b>
<b>65 – 69</b>	<b>9</b>
<b>70 – 74</b>	<b>3</b>
<b>75 – 79</b>	<b>5</b>
<b>80 – 84</b>	<b>2</b>

Which statement best describes the error in Pascal's frequency table?

- A. The 75 – 79 range has too few scores.
- B. The 80 – 84 range had too many scores.
- C. Pascal did not include one of the scores in the frequency table.
- D. Pascal included extra scores in the frequency table.

Use the frequency table below to answer questions 2 and 3.

NUMBER OF CHILDREN AT A PARK

TIME	NUMBER OF CHILDREN
8 AM – 9:59 AM	21
10 AM – 11:59 AM	30
12 PM – 1:59 PM	15
2 PM – 3:59 PM	18

2. During what time range did the park have the most students?
3. What fraction of students were at the park before 12 PM?
4. The heights (in inches) of members of the softball team are below. Make a frequency table of the data.

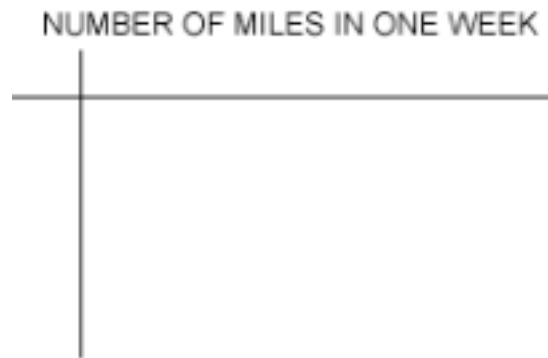
Heights of Softball Team

63	58	56	65	54	57	55	60
54	56	61	64	59	55	67	58
62	53	57	58	61	64	62	55

5. The owner of a trucking company records the number of miles driven by 15 truck drivers in one week, as shown below.

384	398	386	391	437
436	399	388	402	436
394	381	399	412	385

The owner begins to display the data on a stem-and-leaf plot. Complete the stem-and-leaf plot for the data.

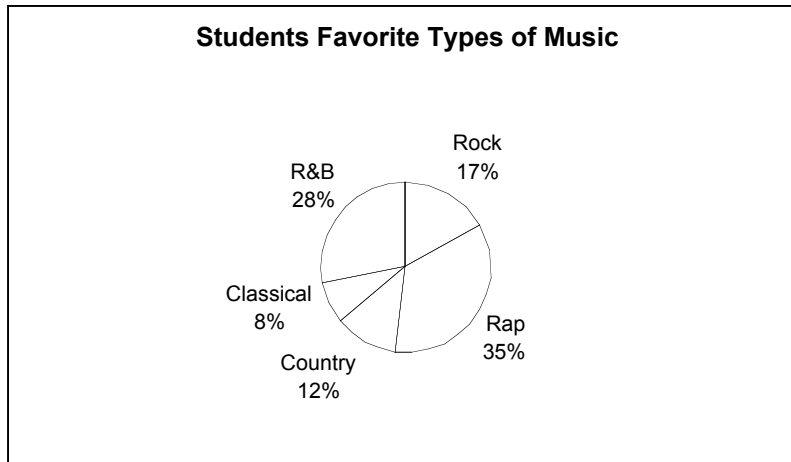


6. A NASCAR driver posted the following speeds while driving on a fast track. Make a stem-and-leaf plot of the speeds.

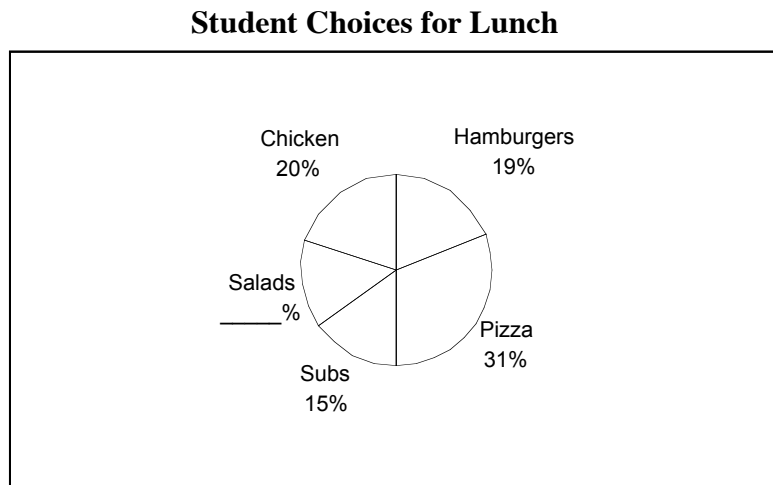
Miles Per Hour

178	201	212	198	198	182	190
183	205	192	197	200	188	188

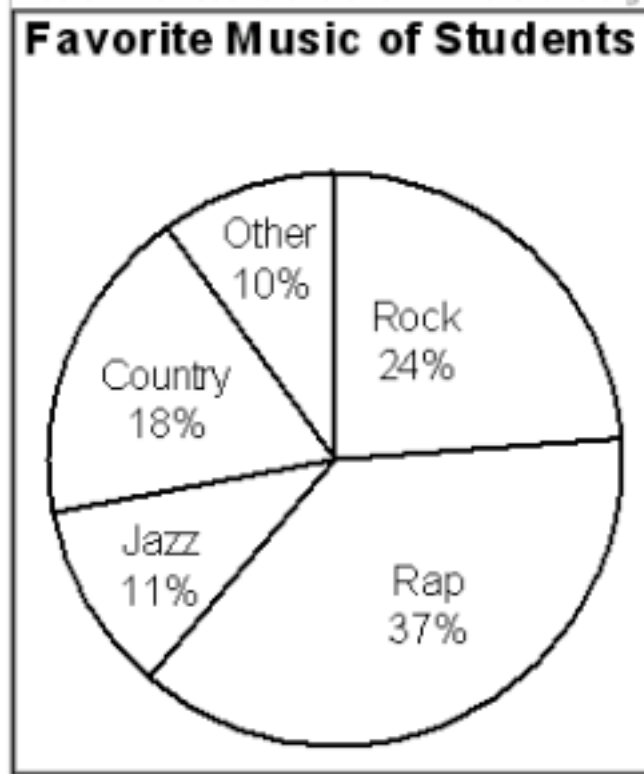
7. According to the graph, which 2 types of music together are approximately as popular as Rap?



8. What percent of the students chose salad for lunch?



9. Shanti surveys the student at her school to find out their favorite type of music. The results are shown in the circle graph below. What percent of students chose rap or country as their favorite type of music?



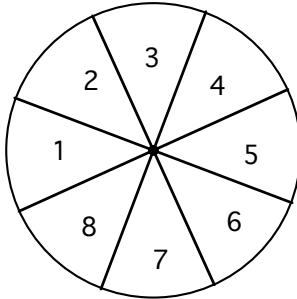
# GRADE 6 MATHEMATICS GOALS

## Standard 5.0 Knowledge of Probability

Instructional Objectives- Students will be able to:	MSA Assessment Limits	Clarifying Examples	SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a>
Determine the number of outcomes (5.A.1.a)	Use no more than 3 independent events with a sample space of no more than 6 outcomes in each event	<p>A team shirt comes in 2 colors of red and black, and in 4 different sized of small, medium, large, and extra large. How many choices of shirts are there?</p> <p>2 colors <math>\times</math> 4 sizes = 8 choices</p>	
Express the probability of an event as a fraction, a decimal, or a percent (5.B.1.a)	Use a sample space of no more than 35 outcomes and decimals with no more than 2 decimal places	<p>You have a spinner that is divided into 8 equal sections labeled from 1 – 8. What is the probability that the spinner lands on number 3?</p> <p><math>\frac{1}{8}</math> or 0.125 or 12.5%</p>	
Make predictions and express the probability of the results as a fraction, a decimal with no more than 2 decimal places or a percent (5.C.1.a)	Use 25 to 50 results	<p>10 out of 15 students preferred Park B to Park A. Predict how many of 60 students will want to go to Park B.</p> <p><math>\frac{10}{15} = \frac{n}{60}</math></p> <p>40 students</p>	

### PRACTICE SET 8

1. Paula spins the spinner below. If she lands on an even number, she wins a prize. What is the probability that Paula wins a prize? Express the probability as a decimal.



2. An eight-sided number die has the following numbers on its faces: 1,2,2,3,4,4,4,5. What is the theoretical probability of rolling a 2? Express the probability as a decimal.
3. There are 4 red marbles, 2 yellow marbles, and 2 blue marbles in a bag. One marble is drawn at random without looking. What is the probability that the marble is not yellow? Express the probability as a decimal.
4. A junk drawer has 6 purple pens, 5 blue pens, 4 red pens, and 5 black pens. Amy selects one pen from the drawer without looking. What is the probability the Amy selects the blue one? Express the probability as a percent.

Use the following information for questions 5 and 6.

John flips a fair coin 20 times with the following results.

Outcome	Tally
Heads	
Tails	

5. What is the experimental probability of getting heads? Write your answer as a percent.
6. Predict the number of times John would get tails if he did the experiment a total of 60 times.
7. Reggie is bowling. In the last 50 throws of his bowling ball, Reggie makes a strike 18 times. Based on his last 50 throws, what is the experimental probability that Reggie will make a strike on his next throw? Write your answer as a fraction in simplest form.
8. Malik plays baseball. In the last 25 times at bat he made a hit 4 times. Based on his last 25 at bats, what is the experimental probability that Malik will make a hit on his next time at bat? Write your answer as a percent.
9. A restaurant has three types of crust and 6 different toppings. If someone randomly chooses 1 type of crust and 1 type of topping, what is the total number of different possible combinations?

10. The list below shows the different taco shells, fillings, and toppings sold at a taco bar.

Taco Shells	Fillings	Toppings
Soft	Chicken	Cheese
Hard	Beef	Lettuce
	Bean	Salsa
		Onions
		Sour Cream

How many different types of tacos can be made using one taco shell, one filling, and one topping?

## GRADE 6 MATHEMATICS GOALS

### Standard 6.0 Knowledge of Number Relationships and Computation/Arithmetic

Instructional Objectives-Students will be able to:	MSA Assessment Limits	Clarifying Examples	SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a>
Read, write, and represent whole numbers (6.A.1.a)	Use exponential form with powers of 10 (0-100,000)	<p>1) Express 78,600 in exponential notation.  <math>7 \times 10^4 + 8 \times 10^3 + 6 \times 10^2</math>.</p> <p>2) Express <math>8 \cdot 8 \cdot 8 \cdot 6 \cdot 6</math> using exponential notation.</p> <p>3) The planet Mars is 710,000,000 miles from the sun. What is the distance expressed in scientific notation?</p> <p>Here are some ways to express a large number.</p> <p>Standard form: 710,000,000</p> <p>Factor form: <math>71 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10</math> or <math>7.1 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10</math></p>	<p>Quarter 1    Unit 1</p> <p>Web: <i>Scientific Notation Generator</i></p>
Read, write, and represent integers (6.A.1.b)	Use integers (-100 to 100)	<p>The number 0 is neither positive nor negative.</p> <p>What number describes a loss of \$5.00?</p> <p style="text-align: center;">- 5</p>	

<b>Instructional Objectives-Students will be able to:</b>	<b>MSA Assessment Limits</b>	<b>Clarifying Examples</b>	<b>SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a></b>
Identify and determine equivalent forms of fractions as decimals, as percents, and as ratios (6.A.1.c)	Use proper fractions with denominators as factors of 100, decimals, percents, or ratios (0-1,000)	<p>To convert Percent to Decimal: Move the decimal point two places to the left. Now drop the percent symbol.</p> <p>To convert Decimal to Percent: Move the decimal point two places to the right. Now write the percent symbol.</p> <p>To convert Percent to Fraction: Write a fraction with a denominator of 100 for the percent. Now write the fraction in simplest form.</p> <p>To convert Fraction (Mixed Number) to Percent: Divide the numerator of the fraction by the denominator. Move the decimal point two places to the right. Now write the percent symbol.</p>	<p>Quarter 1 Unit 1</p> <p>eTools: <i>Equivalent Fractions (NLVM)</i></p> <p><i>Equivalent Fractions (Shodor)</i></p> <p>Games: <i>Equivalent Fractions Game</i></p>
Compare and order fractions, decimals alone or mixed together, with or without relational symbols (<, >, =) (6.A.1.d)	Include no more than 4 fractions with denominators with factors of 100 or decimals with up to 2 decimal places (0-100)	Convert all numbers to either fractions or as decimals and compare.	<p>Quarter 1 Unit 1</p> <p>Activities: <i>Ordering Fractions (Fraction Sorter)</i></p> <p>eTools: <i>Comparing Fractions</i></p>

## PRACTICE SET 9

- Which of the following represents 8,543 in exponential form?
  - $(8 \times 10) + (5 \times 10) + (4 \times 10) + (3 \times 10)$
  - $(8 \times 10^3) + (5 \times 10^2) + (4 \times 10^1) + (3 \times 10^0)$
  - $(8 \times 10^4) + (5 \times 10^3) + (4 \times 10^2) + (3 \times 10^1)$
  - $(8 \times 10^4) + (5 \times 10^4) + (4 \times 10^2) + (3 \times 10^1)$
- What is the standard form of  $(7 \times 10^3) + (3 \times 10^2) + (4 \times 10^0)$ ?
- Sue saved \$85 one year and placed it into a savings account. The next year, she didn't save any additional money. In fact, she spent \$17. The following year, Sue was able to place \$95 in the account, but she spent \$80. After three years, how much money did she have in her savings account?
- One morning in Albany the temperature was  $10^\circ$  below 0. The next morning the temperature was  $20^\circ$  above 0. Write these temperatures as integers?
- Express 0.54 as a fraction in simplest form.
- 86% is equivalent to which decimal?
- Write the decimal equivalent for the fraction  $\frac{20}{50}$ .
- Express  $\frac{3}{8}$  as a percent.

9. Order these fractions from least to greatest.  $\frac{5}{6}, \frac{7}{12}, \frac{11}{24}$
10. Choose the greatest number.  $\frac{7}{8}, 0.38, 0.6, \frac{2}{5}$
11. Order the following numbers from least to greatest:  $3.6, 3.5, 3\frac{1}{5}, 3\frac{4}{5}$ .
12. Which is the least number in this set?  $8.45, 8.4, 8\frac{1}{5}, 8\frac{3}{20}$

## GRADE 6 MATHEMATICS GOALS

### Standard 6.0 Knowledge of Number Relationships and Computation/Arithmetic

Instructional Objectives- Students will be able to:	MSA Assessment Limits	Clarifying Examples	SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a>
Add and subtract fractions and mixed numbers and express answers in simplest form (6.C.1.a)	Use proper fractions and denominators as factors of 60 (0-20)	Adding and Subtracting Fractions with Unlike Denominators: 1. Find equivalent fractions with a common denominator. 2. Add or subtract the numerator. 3. Simplify, if possible.	Quarter 1 Unit 1  eTools: <i>Adding Fractions</i> Tutorials: <i>Visual Fractions</i> Videocasts: <i>Adding and Subtraction Fractions</i> <i>BrainPOP</i> Web: <i>Fractions Adding</i>  <i>Fractions Subtracting</i>
Multiply fractions and mixed numbers and express in simplest form (6.C.1.b)	Use denominators as factors of 24 not including 24 (0-20)	Multiplying Fractions: 1. Multiply the numerators and multiply the denominators. 2. Write the answer in lowest terms.	Quarter 1 Unit 1 eTools: <i>Multiplying Fractions</i> Tutorials: <i>Visual Fractions</i> Videocasts: <i>Multiplying and Dividing Fractions</i> <i>BrainPOP</i> Web: <i>Fractions Multiplying</i>

Instructional Objectives-Students will be able to:	MSA Assessment Limits	Clarifying Examples	SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a>
Multiply decimals (6.C.1.c)	Use a decimal with no more than 3 digits multiplied by a 2 digit decimal (0-1,000)	<p>Multiplying with decimals involves counting the number of decimal places in the factors in order to place the decimal point in the product. The number of decimal places means the number of digits to the right of the decimal point.</p> <p>Multiply : <math>10.8 \times 1.05</math></p> <p style="text-align: center;"><math>10.8 \times 1.05 =</math> 11.340 or 11.34</p>	<p>Quarter 1 Unit 1</p> <p>Videocasts: <i>Maths Mansion: 30. Another Sad Hair Day</i></p> <p>Web: <i>Multiplying Thousandths By Tenths</i></p>
Divide decimals (6.C.1.d)	Use a decimal with no more than 5 digits divided by a whole number with no more than 2 digits without annexing zeros (0-1,000)	<p>Dividing a Decimal by a Whole Number:</p> <ol style="list-style-type: none"> <li>1. Place the decimal point in the quotient directly above the decimal point in the dividend.</li> <li>2. Divide as with whole numbers.</li> </ol>	<p>Quarter 1 Unit 1</p> <p>Tutorials: <i>Division of Decimals by Decimals</i></p>

### PRACTICE SET 10

1. Jae Hyun is making two cakes using two different recipes. One recipe uses  $1\frac{1}{3}$  cups of flour and the other recipe uses  $1\frac{3}{4}$  cups of flour. What is the total amount of flour, in cups, needed for both recipes?
2. Find the sum:  $5\frac{3}{5} + 4\frac{1}{4}$
3. Cynthia ran  $5\frac{3}{5}$  miles on Monday. She ran  $1\frac{1}{3}$  on Wednesday. How many more miles did she run on Monday?
4. Jamal needs to combine  $3\frac{2}{3}$  cups of flour and  $2\frac{3}{4}$  cups of sugar in a large mixing bowl to make a batch of cookies. How many cups of flour and sugar are in the bowl?
5. Amy bought  $4\frac{3}{4}$  lbs of lunch meat. She used  $2\frac{1}{3}$  lbs to make sandwiches. How much lunch meat did she have left?
6. Find the difference:  $8\frac{4}{5} - 3\frac{1}{4}$ .

7. Find the product:  $3\frac{1}{3} \times \frac{1}{2}$
8. There are 28 students in the gym and  $\frac{5}{7}$  of them want to play basketball. How many of them want to play basketball?
9. Find the product:  $2\frac{1}{4} \times 3\frac{2}{6}$
10. Find the product:  $2.35 \times 1.8$
11. Steak is on sale for \$6.24 a pound. How much would a steak cost that weighs 0.75 pound cost?
12. Find the product:  $6.03 \times 0.31$
13. Determine the quotient:  $58.4 \div 8$
14. Determine the product:  $0.897 \times 21$
15. A board is 4.5 feet long. It is then cut into 9 equal pieces. How long is each piece?

# GRADE 6 MATHEMATICS GOALS

## Standard 6.0 Knowledge of Number Relationships and Computation/ Arithmetic

Instructional Objectives-Students will be able to:	MSA Assessment Limits	Clarifying Examples	SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a>
Determine a percent of a whole number (6.C.1.a)	Use 10%, 20%, 25%, or 50% of a whole number (0,1,000)	<p>The percent proportion is</p> $\frac{\text{part}}{\text{whole}} = \frac{\%}{100}$ <p>Example 1: What percent of \$25 is \$15?</p> $\frac{15}{25} = \frac{x}{100}$ $100x = 3600$ $x = 36$	<p>Quarter 2    Unit 2</p> <p>eTools: <i>Percentages</i></p> <p>Tutorials: <i>Percents of a Whole Number</i></p> <p>Web: <i>Percent Problem Solver</i></p> <p><i>Sales Tax (by State)</i></p> <p><i>Tip Calculator</i></p>
Simplify numeric expressions using the properties of addition and multiplication. (6.C.1.f)	Use the distributive property to simplify numeric expressions with whole numbers (0-1,000)	<p>The Distributive Property of Multiplication states that for <math>a</math>, <math>b</math>, and <math>c</math>,</p> $a(b + c) = (ab) + (ac)$ $a(b - c) = (ab) - (ac)$ <p>Multiply <math>6 \times 99</math>.</p> $6 \times 99 = 6 \times (100 - 1)$ $(6 \times 100) - (6 \times 1)$ $600 - 6$ $594$	<p>Quarter 1    Unit 1</p> <p>Activities: <i>Distributive Property Online Practice</i></p> <p>Videocasts: <i>The Distributive Property of Multiplication Over Addition</i></p>

<b>Instructional Objectives-Students will be able to:</b>	<b>MSA Assessment Limits</b>	<b>Clarifying Examples</b>	<b>SMART Resources <a href="http://www.hcpss.org/smart">www.hcpss.org/smart</a></b>
<p>Determine the approximate products and quotients of decimals (6.C.2.a)</p>	<p>Use a decimal with no more than 3-digits multiplied by a 2-digit whole number, or the quotient of a decimal with no more than 4 digits in the dividend divided by a 2-digit whole number (0-1,000)</p>	<p>Sometimes when you multiply, you don't need an exact product. In this case you can estimate products. You can also use estimates to check exact answers you've found.</p> <p>Example You can rent a car for \$25.99 per day, with no extra charge for the number of miles driven. Is \$125 enough to rent the car for 5 days?</p> <p>Since you only need to find out whether <math>5 \times 25.99</math> is less than or is equal to 125, you can use an estimate to answer this question.</p> <p><math>5 \times 26 = 130</math> You don't have enough money.</p>	

## PRACTICE SET 11

1. The sales tax is 6%. What is the tax for your meal that cost \$25.00?
2. An inspection of batteries found that 8 out of 50 were defective. What percent of the batteries were defective?
3. Cory and his brother went to the store to buy sneakers. They were on sale for \$75. If the sales tax was 5% how much in tax was added to the \$75?
4. Benjamin found a stereo on sale. The original price is \$125. The sale price is advertised to be 25% off the original. How much money will Benjamin save?
5. Which is an example of the distributive property?
  - A.  $21 + (3 + 14) = (21 + 3) + 14$
  - B.  $10 \times (3 + 5) = 10 \times 3 + 10 \times 5$
  - C.  $76 + 0 = 76$
  - D.  $32 \times 21 = 21$
6. Which expression is equivalent to  $12 \times (3 + 38)$ ?
  - A.  $12 \times 3 + 38$
  - B.  $12 \times 3 \times 38$
  - C.  $12 \times 3 + 12 \times 38$
  - D.  $12 \times 3 \times 12 \times 38$

7. Which of the following is an example of the distributive property?

- A.  $12 \times 32 = 32 \times 12$
- B.  $2(3 + 5) = 2 \times 3 + 2 \times 5$
- C.  $9 \times 0 = 0$
- D.  $(22 + 54) + 16 = 22 + (54 + 16)$

8. Rewrite the following expression using the distributive property.  $23 \times 7 + 23 \times 3$

9. Find an estimation for  $31.8 \times 21$ . Explain your reasoning.

10. Find an estimation for  $2,040 \div 39$ . Explain your reasoning.

## ANSWER KEY

### PRACTICE SET 1

1.  $4 \times n$

2.  $n \div 9$

3.  $n \div 5$

4.  $4 \times n$

5. 43

6. 40

7. 41

8. 11

9.  $n - 4.25$

10.  $n \div 5$

11.  $n + 6$

12.  $5 \times n$

13.  $\frac{17}{9}$  or  $1 \frac{8}{9}$

14. 19

15. 17

16. 27

### PRACTICE SET 2

1.  $\$3.90 c = \$15.60$

2.  $7 \times w = 70$

3.  $n \div 14 < 276$

4.  $\frac{3}{4}n \geq 4\frac{1}{4}$

5.  $n = 18$

6.  $n = 5$

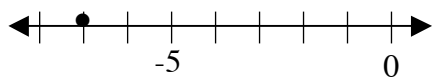
7.  $n = 6.7$

8.  $n = 25.2$

9. W

10.  $-0.5$  or  $-\frac{1}{2}$

11.



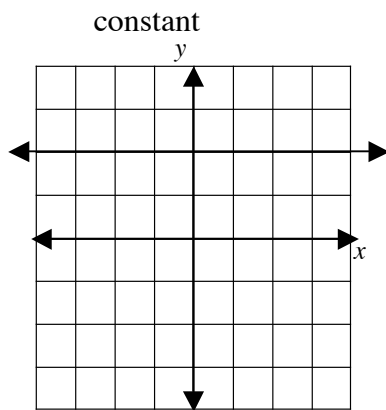
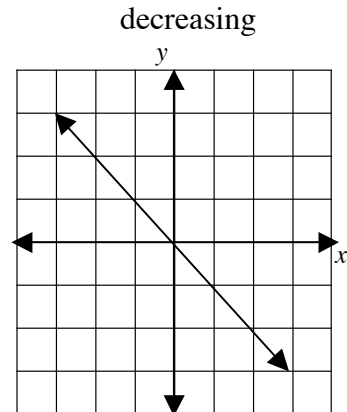
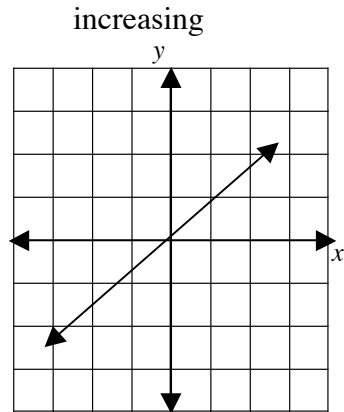
12. E

13.  $(-3, 1)$

14. B

15. U

16.



**PRACTICE SET 3**

1.  $\overline{MP}$

2. 3

3. D

4. C

5. 5 feet

6. circumference

7. 7 feet

8. isosceles

9. scalene

10. acute

11. acute, isosceles

12.  $75^\circ$

13.  $44^\circ$

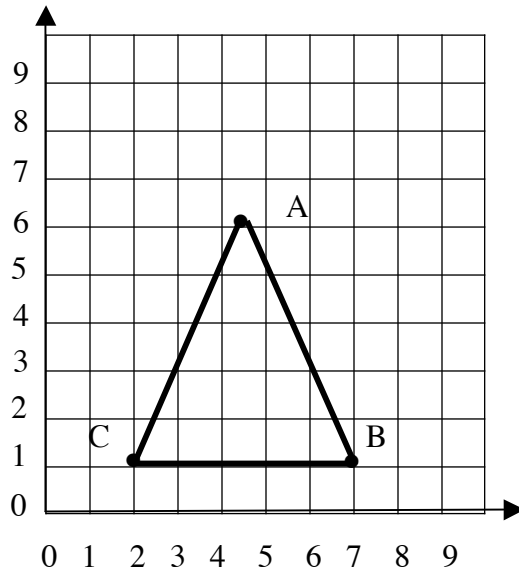
14.  $48^\circ$

15.  $113^\circ$

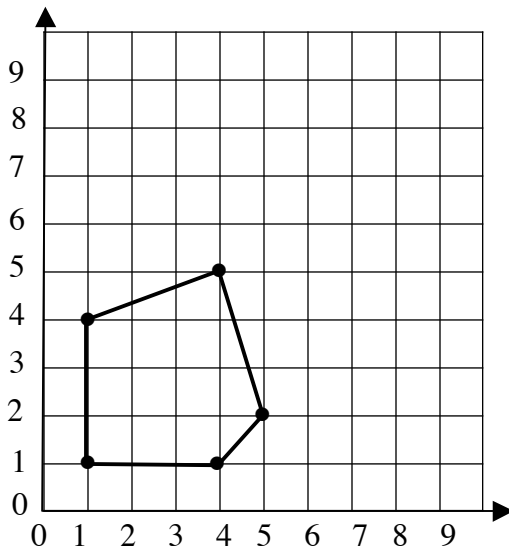
16.  $98^\circ$

**PRACTICE SET 4**

1. Use a ruler and protractor to measure the triangle that you drew.
2. Trapezoid
3. The vertex of angle A can be anywhere on the y-axis but must be between 4 and 5 on the x-axis.



4. Pentagon



5. A
6.  $26^\circ$
7.  $40^\circ$

**PRACTICE SET 5**

1. B
2.  $21 m^2$
3.  $45 m^2$
4.  $72 ft^2$
5.  $36 yd^3$
6.  $81 cm^3$
7.  $36 m^3$

**PRACTICE SET 6**

1.  $130 yd^2$
2.  $36 cm^2$
3.  $34 m^2$
4. 58 m
5. 15 in
6. 36 in
7. 96 ft
8. 18 m
9. 9 ft

**PRACTICE SET 7**

1. C
2. 10 AM – 11:59 AM
3.  $\frac{51}{84}$  or  $\frac{17}{28}$
4. Heights of Softball Team

53 - 55	<del>    </del> 1	6
56 - 58	<del>    </del> 11	7
59 - 61		4
62 - 64	<del>    </del>	5
65 - 67	11	2

Note: Intervals other than 3 may be used for the frequency table.

5. NUMBER OF MILES IN ONE WEEK

Stem	Leaf	
38	1 4 5 6 8	
39	1 4 8 9 9	
40	2	
41	2	Key
42		
43	6 6 7	40   2 is 402

6. Miles Per Hour

Stem	Leaf	
17	8	
18	2 3 8 8	
19	0 2 7 8 8	Key
20	0 1 5	
21	2	17   8 is 178

7. R& B and Classical

8. 15%

9. 55%

**PRACTICE SET 8**

1. 0.50 or 0.5

2. 0.25

3. 0.75

4. 25%

5. 60%

6. 24

7.  $\frac{9}{25}$

8. 16%

9. 18

10. 30

**PRACTICE SET 9**

- |   |                               |
|---|-------------------------------|
| 1. B  | 2. 7,304                      |
| 3. \$83                                       | 4. $-10^\circ$ and $20^\circ$ |
| 5. $\frac{27}{50}$                            | 6. 0.86                       |
| 7. 0.4 or 0.40                                | 8. 37.5%                      |
| 9. $\frac{11}{24}, \frac{7}{12}, \frac{5}{6}$ | 10. $\frac{7}{8}$             |
| 11. $3\frac{1}{5}, 3.5, 3.6, 3\frac{4}{5}$    | 12. $8\frac{3}{20}$           |

**PRACTICE SET 10**

- |                    |                     |
|--------------------|---------------------|
| 1. $3\frac{1}{12}$ | 2. $9\frac{17}{20}$ |
| 3. $4\frac{4}{15}$ | 4. $6\frac{5}{12}$  |
| 5. $2\frac{5}{12}$ | 6. $5\frac{11}{20}$ |
| 7. $1\frac{2}{3}$  | 8. 20               |
| 9. $7\frac{1}{2}$  | 10. 4.23            |
| 11. 4.68           | 12. 1.8693          |
| 13. 7.3            | 14. 18.837          |
| 15. .5             |                     |

**PRACTICE SET 11**

1. \$1.50
2. 16%
3. 3.75
4. \$31.25
5. B
6. C
7. B
8.  $23(7 + 3)$
9. Answers may vary. Sample Answer 1: “31.8 is close to 30 and 21 is close to 20. My estimation is 600 since  $30 \times 20 = 600$ .” Sample Answer 2: “31.8 is close to 32 and 21 is close to 20. My estimation is 640 since  $32 \times 20 = 640$ .”
10. Answers may vary. Sample Answer 1: “My estimation is 50. 2040 is close to 2000 and 39 is close to 40.  $2000 \div 40 = 50$ .” Sample Answer 2: “My estimation is 51. Since 39 is close to 40,  $2040 \div 40 = 51$ .”