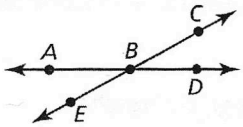
Name_____ Date_____

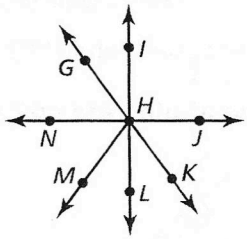
7.1 Practice A

Name two pairs of adjacent angles and two pairs of vertical angles in the figure.

1.

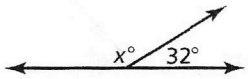


2.



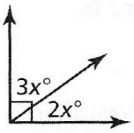
Tell whether the angles are *adjacent* or *vertical*. Then find the value of *x*.

3.

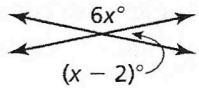


4.

5.



6.



Draw a pair of vertical angles with the given measure.

7. 40° **8.** 75° **9.** 120°

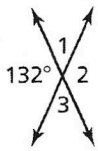
10. Draw a pair of adjacent angles with the given description.

a. Both angles are obtuse.

b. The sum of the angle measures is 180°.

c. The sum of the angles measures is 60°.

11. What are the measures of the other three angles formed by the intersection?



Name_____ Date_____

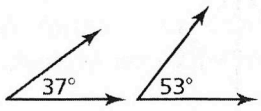
7.2 Practice A

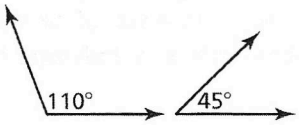
Tell whether the statement is *always*, *sometimes*, or *never* true. Explain.

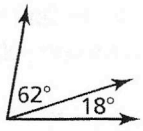
1. If x and y are supplementary angles, then y is acute.

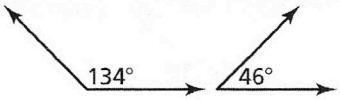
2. If x and y are complementary angles, then x is obtuse.

Tell whether the angles are *complementary*, *supplementary*, or *neither*.

3. 

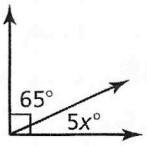
4. 

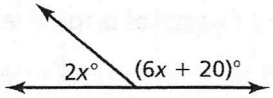
5. 

6. 

7. Angle x and angle y are complementary. Angle x is supplementary to a 128° angle. What are the measures of angle x and angle y?

Tell whether the angles are *complementary* or *supplementary*. Then find the value of *x*.

8. 

9. 

Draw a pair of adjacent supplementary angles so that one angle has the given measure.

10. 50°

11. 110°

12. 135°

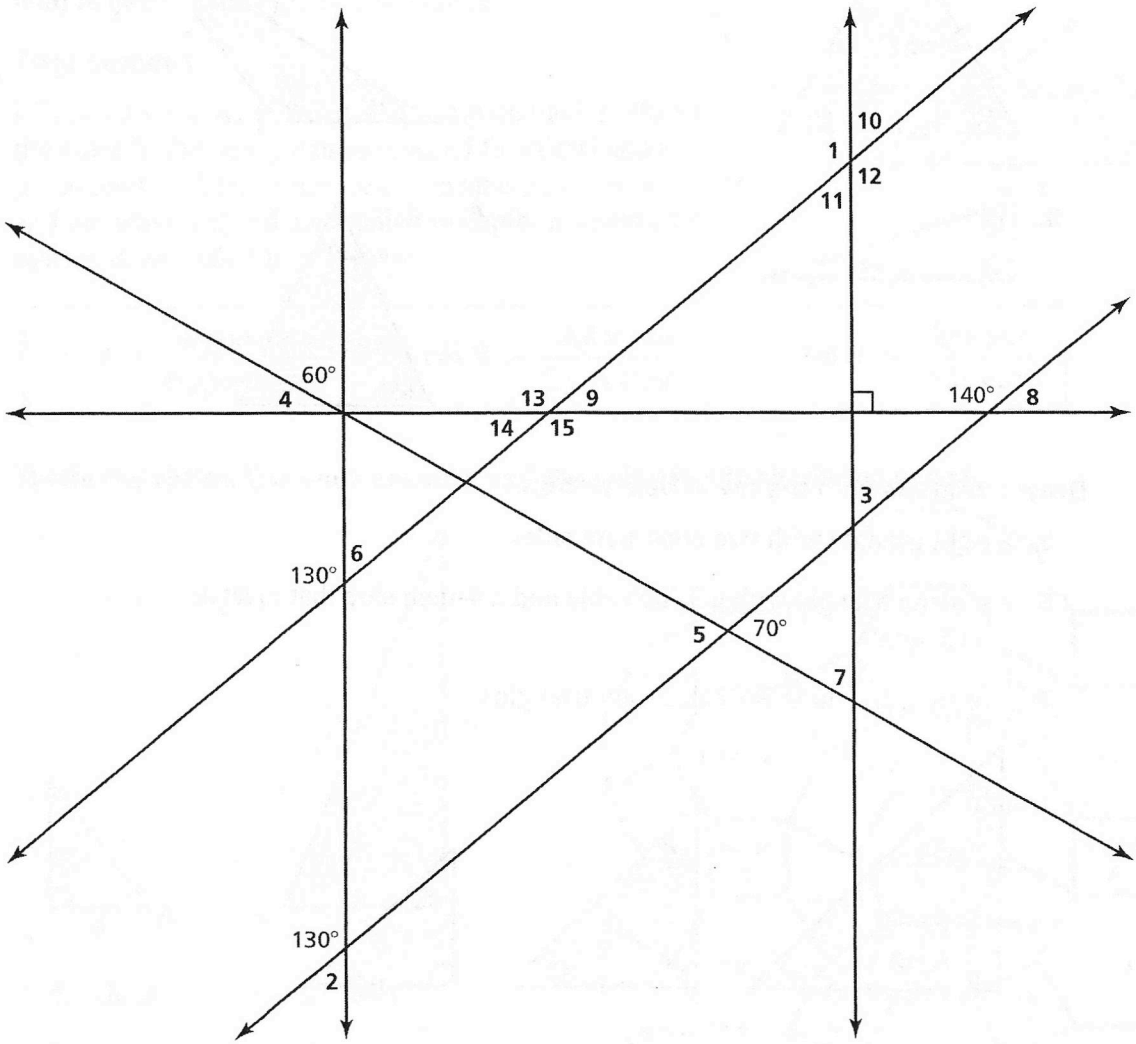
13. Two angles have the same measure. What are their measures if they are also complementary angles? supplementary angles?

Name_____ Date_____

7.2 Enrichment and Extension

Finding Missing Angles

Use properties of shapes and angles to find the missing measures.

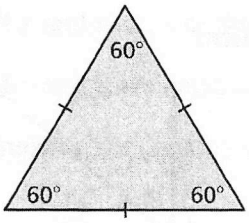


Name_____ Date_____

7.3 Practice A

Classify the triangle.

1.



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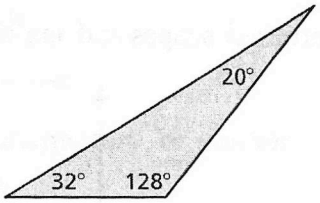
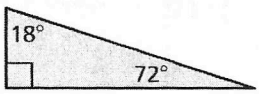
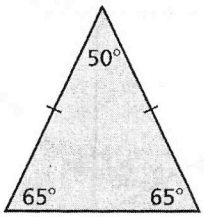


3.



4.

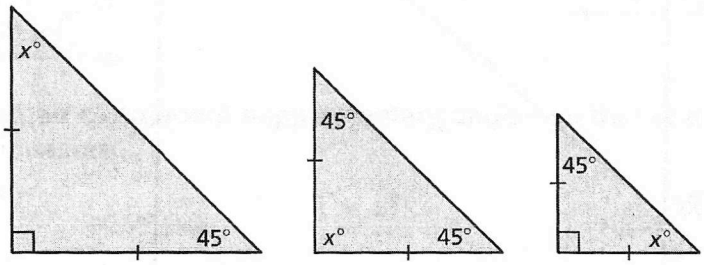


Draw a triangle with the given description.

5. a right triangle with two congruent sides

6. a scalene triangle with a 3-inch side and a 4-inch side that meet at a 110° angle

7. Consider the three isosceles right triangles.



a. Find the value of x for each triangle.

b. What do you notice about the angle measures of each triangle?

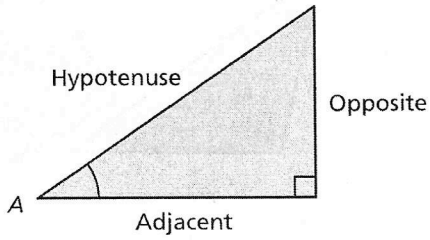
c. Write a rule about the angle measures of an isosceles right triangle.

Name_____ Date_____

7.3 Enrichment and Extension

Writing Ratios

The sides of a right triangle can be named by their locations with respect to an angle of the triangle.

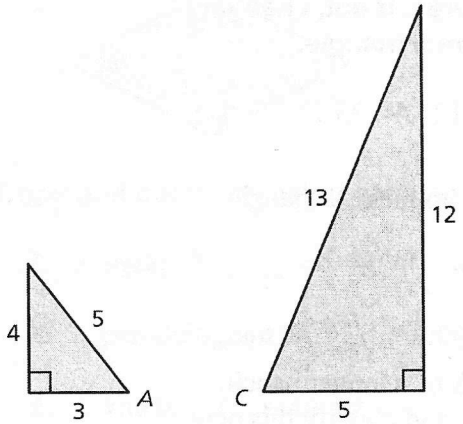


Trigonometry

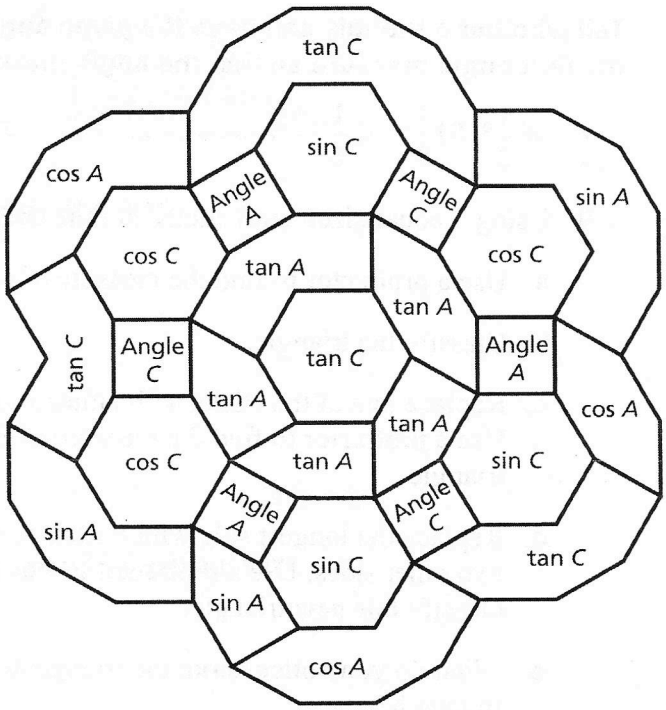
It is possible to write ratios that compare the lengths of the sides in the triangle using special functions and a given angle. These ratios are called sine (sin), cosine (cos), and tangent (tan) and are studied in depth in a branch of mathematics called trigonometry.

$$\sin A = \frac{\text{Opposite}}{\text{Hypotenuse}} \qquad \cos A = \frac{\text{Adjacent}}{\text{Hypotenuse}} \qquad \tan A = \frac{\text{Opposite}}{\text{Adjacent}}$$

Write the ratios. Use your answers and the color key to shade the mosaic.



1. $\sin A$
2. $\tan C$
3. $\cos A$
4. $\tan A$
5. $\sin C$
6. $\cos C$



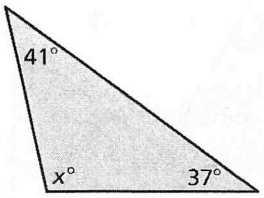
Key:
Angles = Blue
5 in the denominator = Red
13 in the denominator = Yellow
3 in the denominator = Purple

Name _____ Date _____

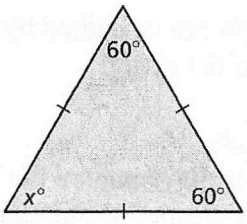
Extension 7.3 Practice

Find the value of *x*. Then classify the triangle.

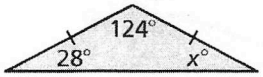
1.



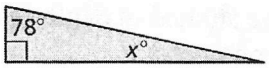
2.



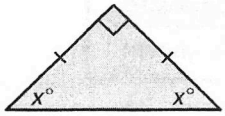
3.



4.



5.



6.

Tell whether a triangle can have the given angle measures. If not, change the first angle measure so that the angle measures form a triangle.

7. $46\frac{1}{3}°, 81\frac{1}{2}°, 52\frac{1}{6}°$

8. $36.9°, 121.4°, 33.7°$

9. Using 3 equal-sized craft sticks, put the ends together to make a triangle.

a. Use a protractor to find the measure of each angle.

b. Classify the triangle.

c. Replace one of the sticks with either a longer stick or a longer pencil. Use a protractor to find the measure of each angle and classify this new triangle.

d. Replace the longest side with a stick or pencil that is shorter than the two other sides. Use a protractor to find the measure of each angle and classify this new triangle.

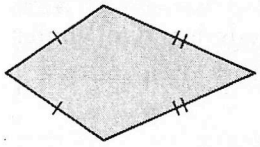
e. What do you notice about the triangle when two of its sides are equal in length?

Name_____ Date_____

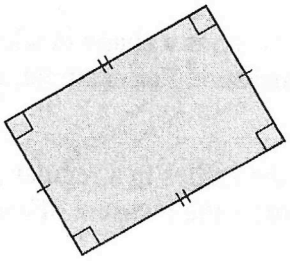
7.4 Practice A

Classify the quadrilateral.

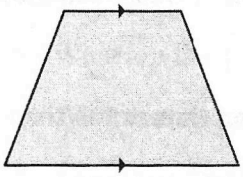
1.



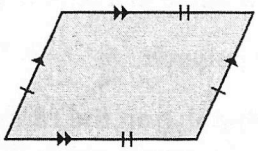
2.



3.

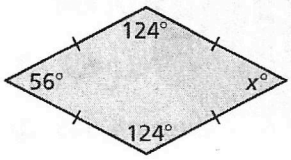


4.

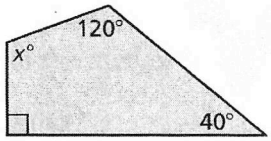


Find the value of *x*.

5.



6.



Copy and complete using *always*, *sometimes*, or *never*.

7. A square is __?__ a rhombus.

8. A parallelogram is __?__ a rectangle.

9. A kite is __?__ a square.

10. A trapezoid is __?__ a square.

11. Draw the following trapezoids. If it is not possible, explain why.

a. a trapezoid with one right angle

b. a trapezoid with two right angles

c. a trapezoid with three right angles

d. a trapezoid with four right angles

Name_____ Date_____

7.4 Enrichment and Extension

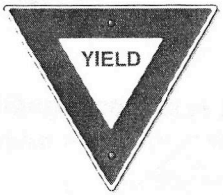
Sum of Interior Angles

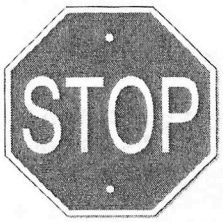
A regular polygon is a shape in which all sides are the same length and all angles have equal measure. For example, a regular quadrilateral is most often called a square.

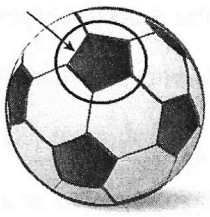
Because all the angles in a regular polygon have equal measure, a formula can be used to calculate the measure of each angle:

Measure of one angle in a regular polygon $= \dfrac{(n-2)180°}{n}$, where n is the number of sides in the polygon.

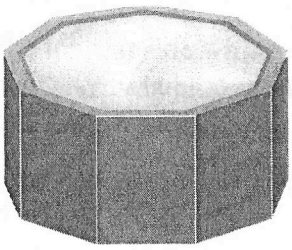
Identify which polygon the real-life object resembles. Then determine the measure of each angle using the formula.

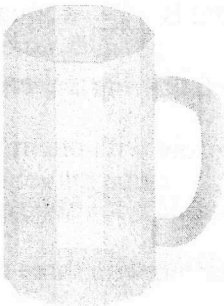
1. 

2. 

3. 

4. 

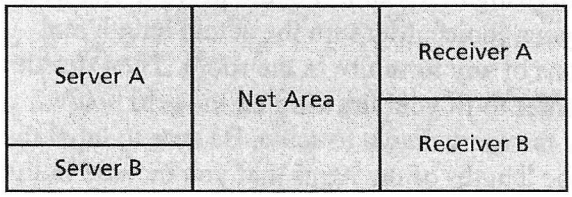
5. 

6. 

Name_____ Date_____

7.5 Practice A

1. Use the drawing of the game court and an inch ruler. Each inch in the drawing represents 8 feet.



   a. What is the actual length of the court?

   b. What are the actual dimensions of Receiver A?

   c. What are the actual dimensions of the Net Area?

   d. The area of Server B is what percent of the area of Server A?

   e. What is the ratio of the perimeter of Receiver B to the perimeter of Net Area?

   f. What is the ratio of the area of Receiver B to the area of Net Area?

   g. Are Receiver B and Net Area similar rectangles?

   h. The area of Server A is increased by what percent to get the area of Net Area?

Find the missing dimension. Use the scale factor 1 : 5.

2. Model: 3 ft
   Actual: __?__

3. Model: 7 m
   Actual: __?__

4. Model: __?__
   Actual: 20 yd

5. Model: __?__
   Actual: 12.5 cm

6. A scale drawing of a rose is 3 inches long. The actual rose is 1.5 feet long.

   a. What is the scale of the drawing?

   b. What is the scale factor of the drawing?

Name_____ Date_____

7.5 Enrichment and Extension

Create a Scale Drawing

Your challenge is to create a scale drawing of a room. It could be your classroom, your bedroom, or another room of your choice. Measure the actual length and width of the room and the dimensions of any furniture in the room. Then decide what your scale will have to be in order to fit your drawing on the grid below. Include furniture and other items in the room drawn to scale. Be sure to label the scale dimensions of the room and the lengths of the items that you include in the room.

Trade papers with another student in your class. Use the scale drawing you are given and the scale to find the actual dimensions of the room and the furniture. Check your answers with the actual dimensions.

Your scale: _____ = _____

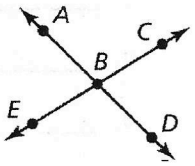
Name _____ Date _____

Chapter 7 Take Home Quiz #1

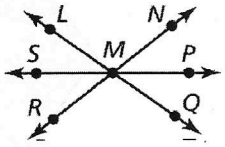
For use after Section 7.3

Name two pairs of adjacent angles and two pairs of vertical angles in the figure.

1.

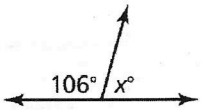


2.

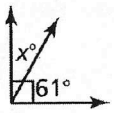


Tell whether the angles are *adjacent* or *vertical*. Then find the value of *x*.

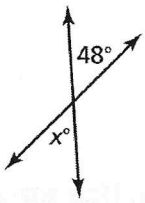
3.



4.

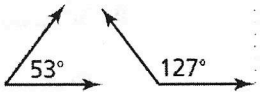


5.



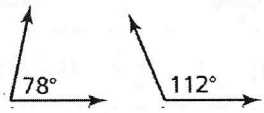
Tell whether the angles are *complementary, supplementary*, or *neither*.

6.



7.

8.



Draw a pair of adjacent complementary angles so that one angle has the given measure.

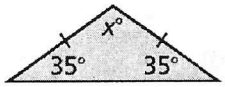
9. 30°

10. 45°

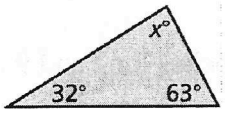
11. 75°

Find the value of *x*. Then classify the triangle.

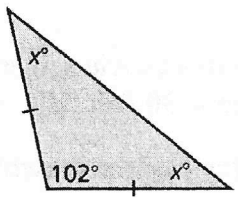
12.



13.



14.



15. The measures of two supplementary angles have a ratio of 5 : 4. What is the measure of the larger angle?

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. See left.
10. See left.
11. See left.
12. _____
13. _____
14. _____
15. _____

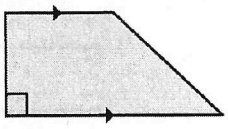
Name _____ Date _____

Chapter 7 Take Home Quiz #2

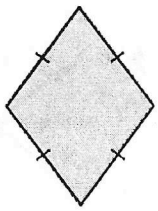
For use after Section 7.5

Classify the quadrilateral.

1.

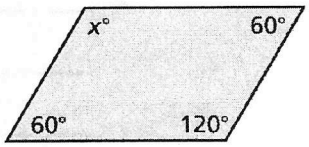


2.

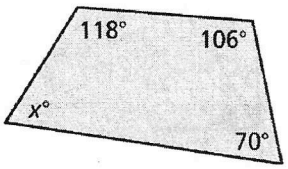


Find the value of x.

3.



4.

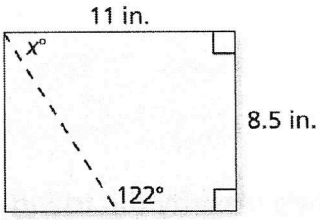


Find the missing dimension. Use the scale factor 1 : 15.

	Item	Model	Actual
5.	Tree	Height: ___?___ ft	Height: 30 ft
6.	Door	Height: 10 in.	Height: ___?___ in.

7. A basketball player is 6 feet 8 inches tall. A model of the basketball player is 5 inches tall. What is the scale factor?

8. You cut one triangle from the piece of paper as shown.



a. Which quadrilateral is formed?

b. Find the value of x.

9. A scale drawing of a movie screen is 21 inches long and 9 inches tall. The actual screen is 30 feet tall.

a. What is the scale of the drawing?

b. Find the perimeter and area of the movie screen in the scale drawing.

c. Find the actual perimeter and area of the movie screen.

Answers

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. a. _____

b. _____

9. a. _____

b. _____

_____

c. _____

_____