

Chapter 1: Essentials of Geometry

1) Point B is between A and C on  $\overline{AC}$ . Use the given information to write an equation in terms of  $x$ . Solve the equation. Then find AB and BC, and determine whether  $\overline{AB}$  and  $\overline{BC}$  are congruent.

a)  $AB = 4x - 5$

b)  $AB = x + 3$

$BC = 2x - 7$

$BC = 2x + 1$

$AC = 54$

$AC = 10$

2) Find the coordinates of the midpoint of the segment with the given endpoints.

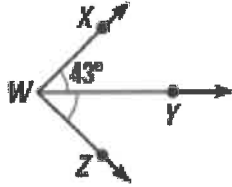
$A(2, -4), B(7, 1)$

4) Find the length of the segment with given endpoint and midpoint M.

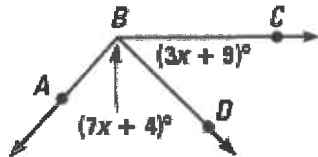
$A(-3, -4), M(9, 5)$

5) Use the given information to find the indicated angle measures.

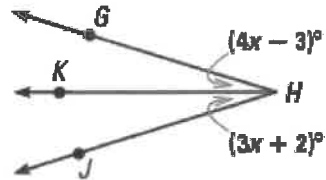
$$m\angle XWZ = \underline{\quad ? \quad}$$



6) Given  $m\angle ABC = 133^\circ$ , find  $m\angle ABD$ .

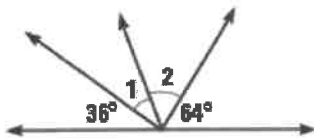


7) Given  $m\angle GHK = 17^\circ$ , find  $m\angle KHJ$ .

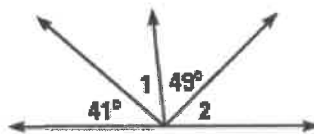


8) Tell whether  $\angle 1$  and  $\angle 2$  are *vertical angles*, *adjacent angles*, a *linear pair*, *complementary*, or *supplementary*. There may be more than one answer.

a)



b)



c)



Chapter 2: Reasoning and Proof

1) For the statement "Soccer players are athletes." Write the:

a) If-then form:

b) Converse:

2) Use the diagram to determine if the statement is true or false.

\_\_\_ a)  $\overleftrightarrow{SV} \perp \text{plane Z}$

\_\_\_ b)  $\overleftrightarrow{XU}$  intersects plane Z at point Y.

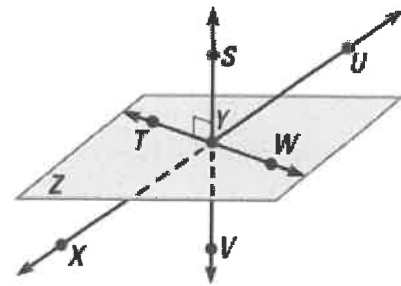
\_\_\_ c)  $\overleftrightarrow{TW}$  lies in plane Z.

\_\_\_ d)  $\angle SYT$  and  $\angle WYS$  are vertical angles.

\_\_\_ e)  $\angle SYT$  and  $\angle TYV$  are complementary angles.

\_\_\_ f)  $\angle TYU$  and  $\angle UYW$  are a linear pair.

\_\_\_ g)  $\angle UYV$  is acute.

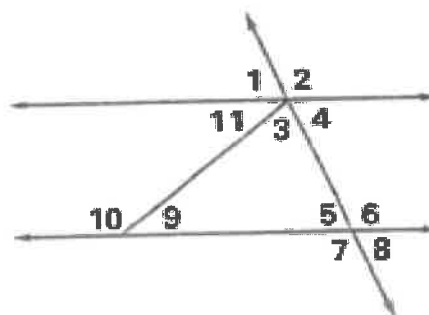


3) Write the converse of the true statement. Determine if the converse is also true. If it is combine the statements to write a true biconditional statement.

If two circles have the same diameter, then they have the same circumference.

4) Use the diagram and the given information to solve for each of the angles.

$\angle 4 \cong \angle 5$ ,  $m\angle 3 = 40^\circ$ ,  $m\angle 6 = 120^\circ$ , and  
 $m\angle 3 + m\angle 5 + m\angle 9 = 180^\circ$ .



a)  $m\angle 1 =$  \_\_\_\_\_

b)  $m\angle 2 =$  \_\_\_\_\_

c)  $m\angle 3 =$  \_\_\_\_\_

d)  $m\angle 4 =$  \_\_\_\_\_

e)  $m\angle 5 =$  \_\_\_\_\_

f)  $m\angle 6 =$  \_\_\_\_\_

g)  $m\angle 7 =$  \_\_\_\_\_

i)  $m\angle 8 =$  \_\_\_\_\_

h)  $m\angle 9 =$  \_\_\_\_\_

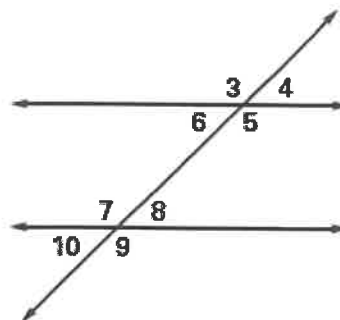
j)  $m\angle 10 =$  \_\_\_\_\_

k)  $m\angle 11 =$  \_\_\_\_\_

Chapter 3: Parallel and Perpendicular Lines

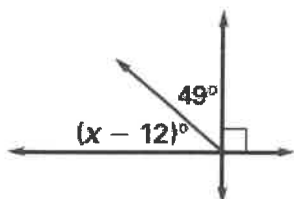
1) Complete the statement with *corresponding*, *alternate interior*, *alternate exterior*, or *consecutive interior*.

- a) \_\_\_\_\_  $\angle 3$  and  $\angle 7$  are \_\_\_\_\_ angles.  
 b) \_\_\_\_\_  $\angle 4$  and  $\angle 10$  are \_\_\_\_\_ angles.  
 c) \_\_\_\_\_  $\angle 5$  and  $\angle 8$  are \_\_\_\_\_ angles.  
 d) \_\_\_\_\_  $\angle 8$  and  $\angle 6$  are \_\_\_\_\_ angles.  
 e) \_\_\_\_\_  $\angle 9$  and  $\angle 5$  are \_\_\_\_\_ angles.  
 f) \_\_\_\_\_  $\angle 5$  and  $\angle 7$  are \_\_\_\_\_ angles.

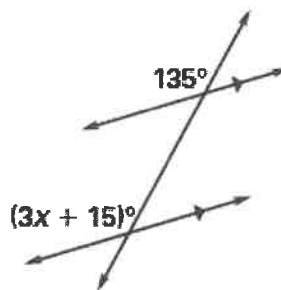


2) Find the value of  $x$ .

a)

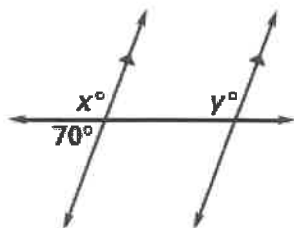


b)

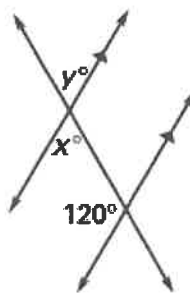


Find the values of  $x$  and  $y$ .

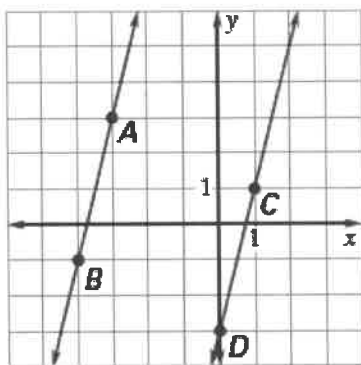
c)



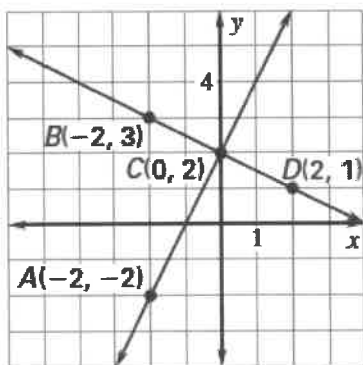
d)



- 4 Find the slope of each line. Are the lines parallel?



- 5) Find the slope of  $\overleftrightarrow{AC}$  and  $\overleftrightarrow{BD}$ . Decide whether  $\overleftrightarrow{AC}$  is perpendicular to  $\overleftrightarrow{BD}$ .



- 6) Find the slope of the line through the points (0, 2) and (3, 4)

- 7) Write an equation of a line that passes through the given point and has the given slope. Put your answers in all three forms for a and b. (point-slope, slope-intercept and standard)

a)  $(-4, 3)$ ,  $m = 2$

b)  $(7, -3)$ ,  $m = -\frac{4}{7}$

c)  $(-11, 4), m = 0$

d)  $(5, -12), m = \text{undefined}$

8) Write an equation of the line that passes through the given point and satisfies the given condition. **Put your answers in all three forms.**

a)  $(-3, -5)$ ; parallel to  $y = -3x + 1$

b)  $(-6, 2)$ ; perpendicular to  $y = 5x + 1$

9) Find the x- and y-intercepts of each equation

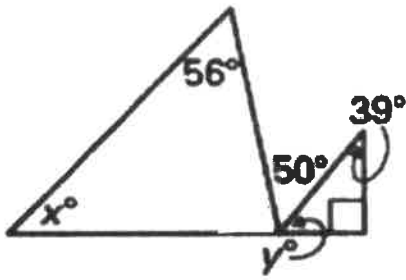
a)  $y = \frac{2}{3}x - 5$

b)  $4x - 2y = 12$

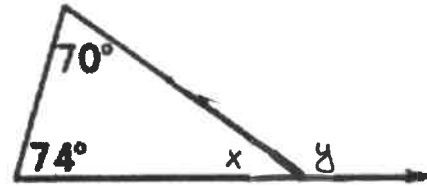
c)  $y - 3 = -\frac{3}{4}(x - 12)$

3) Find the values of  $x$  and  $y$ .

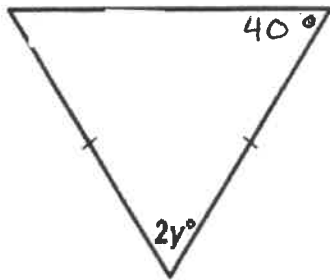
a)



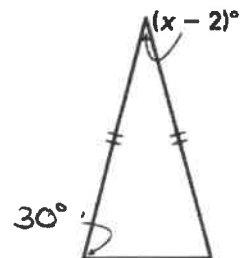
b)



c)

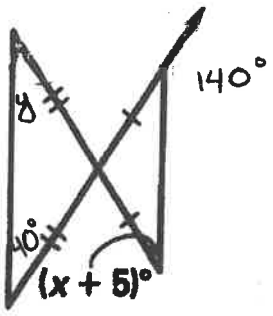


d)





e)



4) Find the value of  $x$

