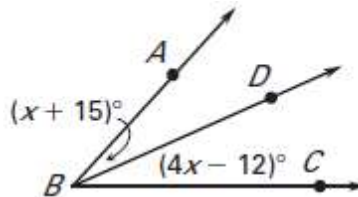


Read each question carefully! Show all work!

1. What is the difference between  $\overline{AB}$ ,  $\overrightarrow{AB}$ , and  $\overleftrightarrow{AB}$ ?
2. What is the distance formula?
3. What does it mean to bisect something?
4. What are complementary angles? Supplementary angles?
5. Find the distance between the two points. Round your answers to the nearest hundredth.  
 $A(-3, 4)$  and  $B(0, 9)$

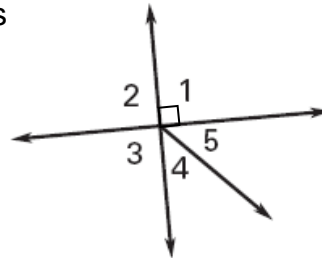
6. Find the midpoint between the two points.  
 $P(6, -1)$  and  $Q(-2, 0)$

7.  $\overrightarrow{BD}$  bisects  $\angle ABC$ . Find  $m\angle ABC$ .



8. Given the diagram, describe the following angle pairs

- a) 1 and 2
- b) 4 and 5
- c) 1 and 3



9. Write the converse, inverse and contrapositive of the statement. Say if the statement is true or false. *"If the sum of the measures of two angles is  $90^\circ$ , then the angles are complementary."*

10. What do you know about the slopes of perpendicular lines? Parallel lines?

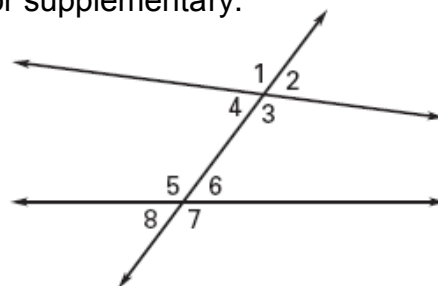
11. Name the given angle pair and tell if they're congruent or supplementary.

a) 1 and 7

b) 4 and 6

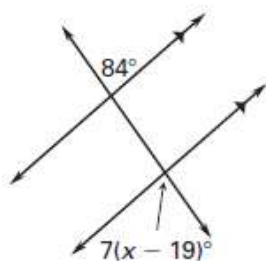
c) 3 and 6

d) 4 and 8

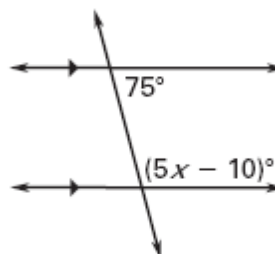


For 12 – 15, find the value of  $x$ .

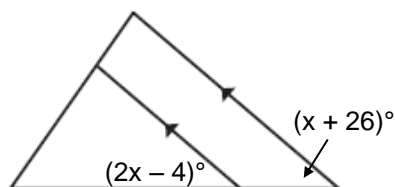
12.



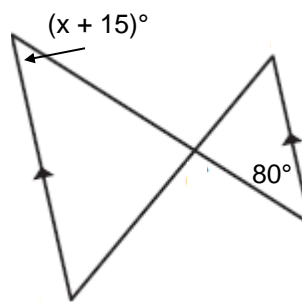
13.



14.



15.



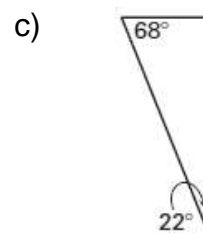
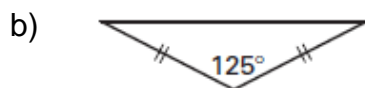
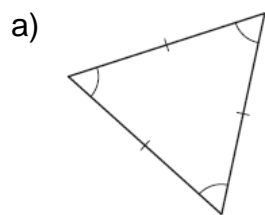
16. What is the slope of the equation of the line parallel to  $y = -\frac{1}{2}x + 4$ ?

17. What is the slope of the equation of the line perpendicular to  $y = 3x - 7$ ?

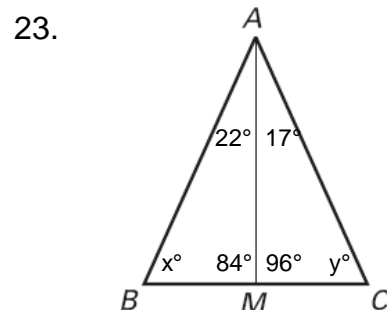
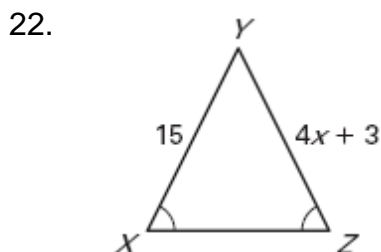
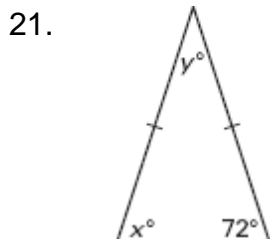
18. What are the three triangle classifications by its sides?

19. What are the four triangle classifications by its angles?

20. Classify the triangle by its **sides** and **angles**.



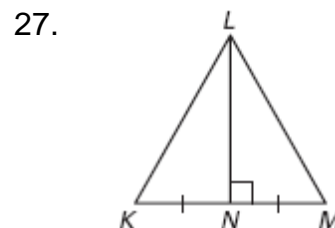
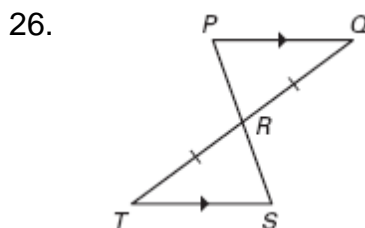
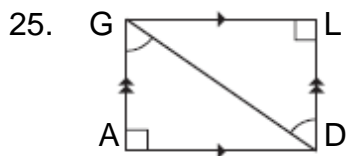
Find the value of the variable(s).



24. What are four ways of proving two triangles are congruent?

- a) \_\_\_\_\_ b) \_\_\_\_\_  
c) \_\_\_\_\_ d) \_\_\_\_\_

State which postulate or Theorem(s) can be used to prove the triangles congruent. Write a congruence statement for each.



$\Delta$  \_\_\_\_\_  $\cong$   $\Delta$  \_\_\_\_\_

$\Delta$  \_\_\_\_\_  $\cong$   $\Delta$  \_\_\_\_\_

$\Delta$  \_\_\_\_\_  $\cong$   $\Delta$  \_\_\_\_\_

28. What does it mean for two polygons to be similar?

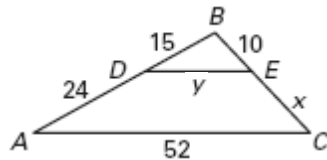
29. What are three ways of proving two triangles are similar?

a)

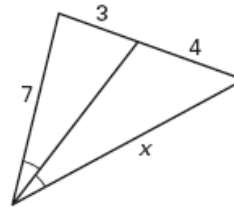
b)

c)

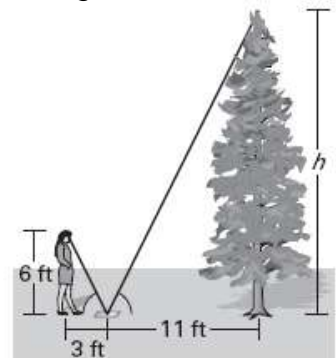
30. Find the value of  $x$  and  $y$ .



31. Find the value of  $x$ .



32. To estimate the height  $h$  of a tall pine tree, a student places a mirror on the ground and stands where she can see the top of the tree, as shown. The student is 6 feet tall and stands 3 feet from the mirror which is 11 feet from the base of the tree. Find the height of the tree.

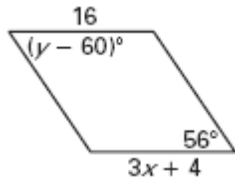


33. Name 5 properties of a parallelogram.

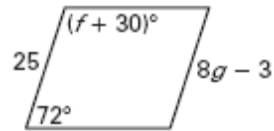
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Using the properties of parallelograms, find the value of the variables in the parallelogram.

34.



35.

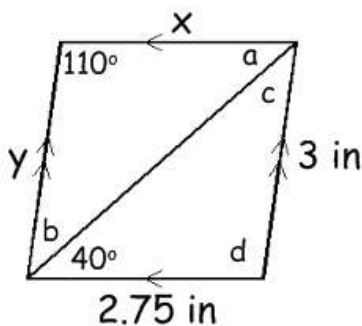


36. The perimeter of square ABCD is 80 inches, and  $BC = 2x + 4$ . What is the value of  $x$ ?

37. What's the most specific name for a quadrilateral with only one pair of parallel sides?

38. A square is a rectangle. Is this statement sometimes true, always true, or never true?

39. Find the value of the variables in the parallelogram.



$a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$

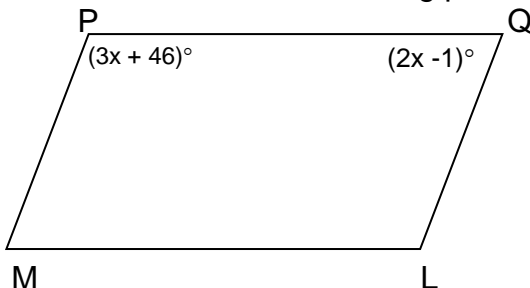
$c = \underline{\hspace{2cm}}$

$d = \underline{\hspace{2cm}}$

$x = \underline{\hspace{2cm}}$

$y = \underline{\hspace{2cm}}$

40. Find the value of  $x$  in the following parallelogram. List the measure of each angle.



$x = \underline{\hspace{2cm}}$

$\angle P = \underline{\hspace{2cm}}$

$\angle Q = \underline{\hspace{2cm}}$

$\angle M = \underline{\hspace{2cm}}$

$\angle L = \underline{\hspace{2cm}}$

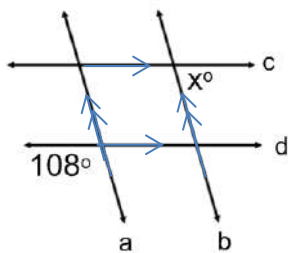
For problems #41-47, tell whether the statement is true or false.

41. TRUE/FALSE: The consecutive interior angles are always supplementary in a parallelogram.
42. TRUE/FALSE: The opposite sides of a kite are always congruent.
43. TRUE/FALSE: The diagonals of a rectangle are congruent and bisect each other.
44. TRUE/FALSE: The rhombus is the only quadrilateral that has two adjacent, congruent sides.
45. TRUE/FALSE: The opposite angles of a rhombus are always supplementary.
46. TRUE/FALSE: A kite's diagonals are congruent and perpendicular.

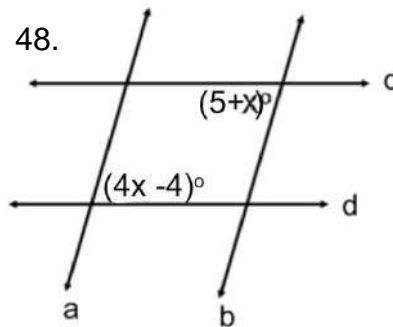
**For problems #47-50, you may need to factor or use the quadratic formula.**

Lines a and b are parallel. Lines c and d are parallel. Find the value of x.

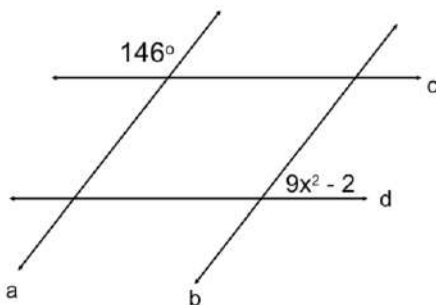
47.



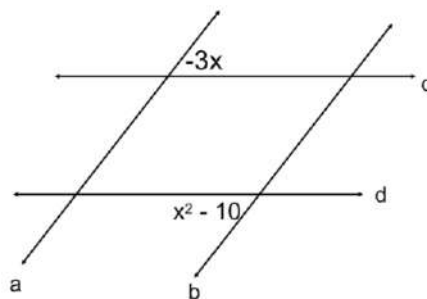
48.



49.



50.



Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$