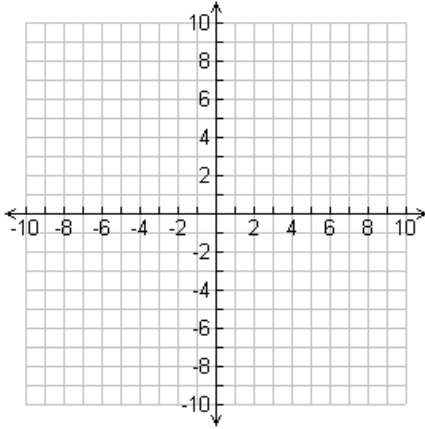


Directions: Use the Pythagorean Theorem or Distance Formula to find the distance of each segment, and then find the midpoint of each segment and slope. You must simplify radicals and fractions!!!! You must show all work for each problem.

1. A(-4,2), B(8,-6)



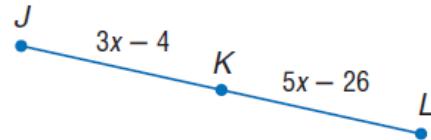
Distance: _____

Midpoint: _____

Slope: _____

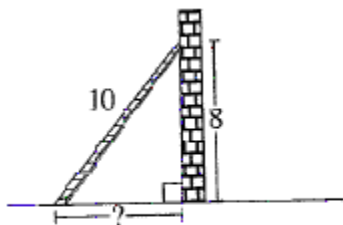
Directions: Answer each question. Show your work and reasoning.

2. Find x and the measure of \overline{JK} if K is the midpoint of \overline{JL} . You must start this problem with a geometry step. Show all of your work.

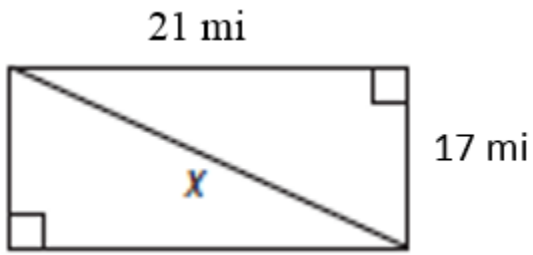


3 Find the value of x and SR if R is between S and T . $SR = 3x$, $RT = 2x + 1$, $ST = 6x - 1$. Draw, mark, and label your figure. You must start this problem with a geometry step. Show all of your work.

4. A ladder is 10ft long and reaches 8 feet up a wall, as shown in the picture. How many feet is the bottom of the base of the wall?

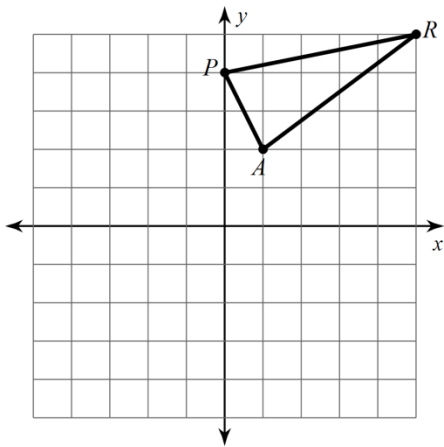


5. Find x .

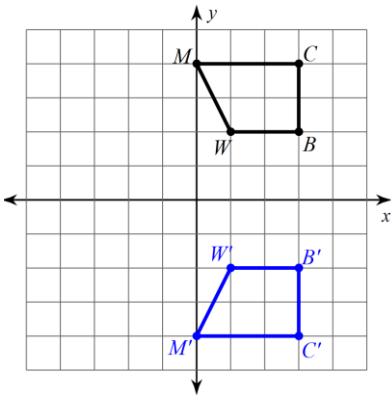


Directions: Perform the given transformations.

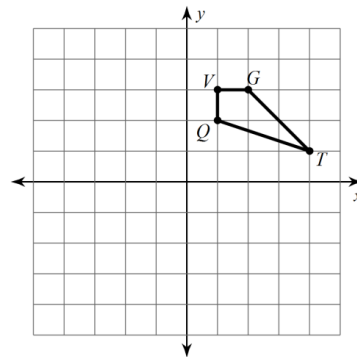
6. What will the coordinates of each point be of your image giving the transformation $(x,y) \rightarrow (x - 5, y - 2)$.



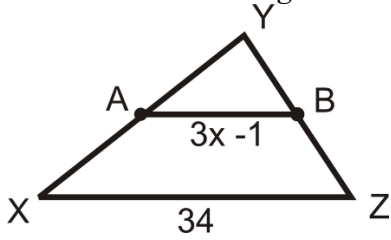
7. Draw the line of reflection.



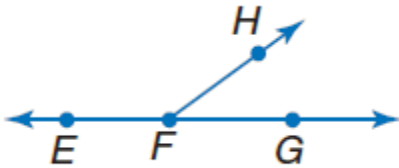
8. Reflect over the x-axis.



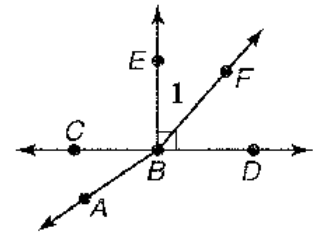
9. AB is the midsegment of triangle XYZ, find x.



10. Find x if $m\angle EFH = 3x + 10$ and $m\angle HFG = 4x + 30$

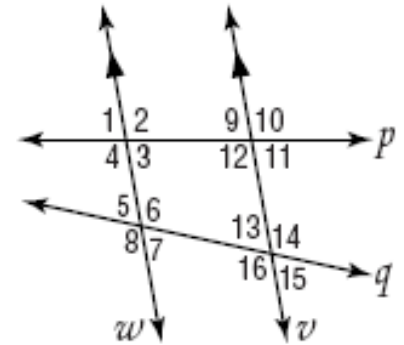


11. Find x and the $m\angle 1$ if $m\angle CBA = 3x - 10$ and $m\angle FBD = 2x + 5$.

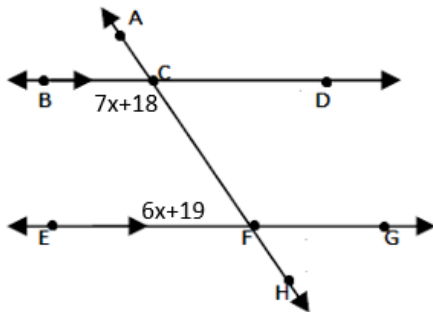


12. If $w \parallel v$, give the justification for each statement.

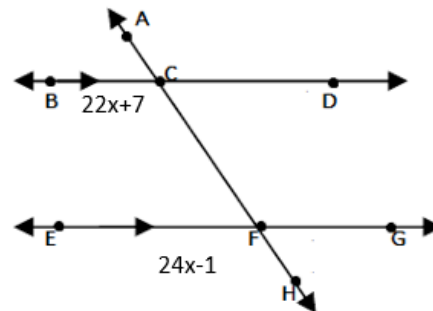
- a. $\angle 2 \cong \angle 12$ b. $\angle 8 \cong \angle 14$ c. $\angle 5 \cong \angle 13$
 d. $\angle 10 \cong \angle 2$ e. $\angle 7 + \angle 16 = 180^\circ$ f. $\angle 16 \cong \angle 6$



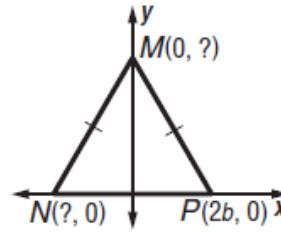
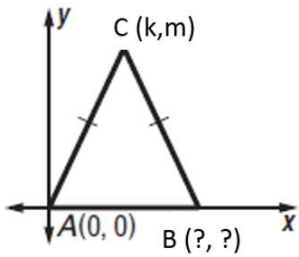
13. Find x.



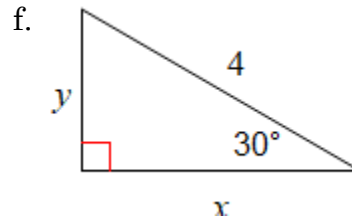
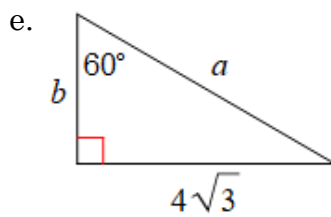
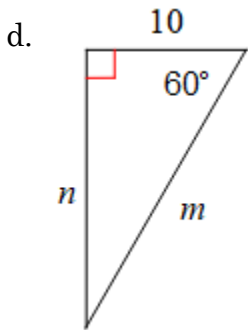
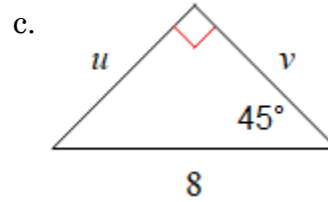
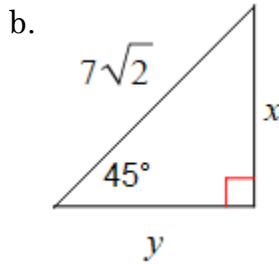
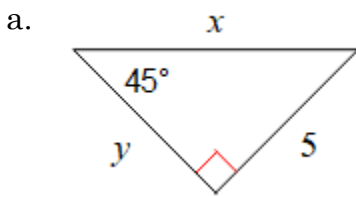
14. Find x.



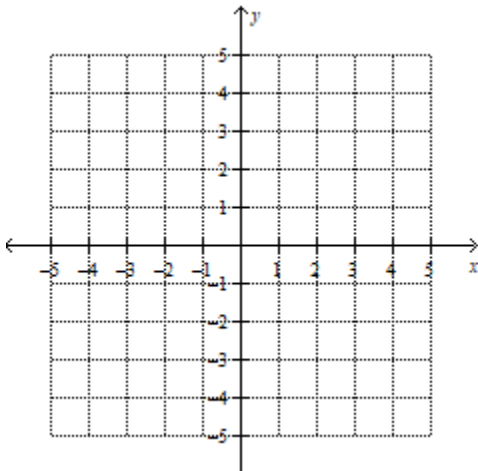
15. Find the missing coordinates of the triangle. 2. Find the missing coordinates of the triangle.



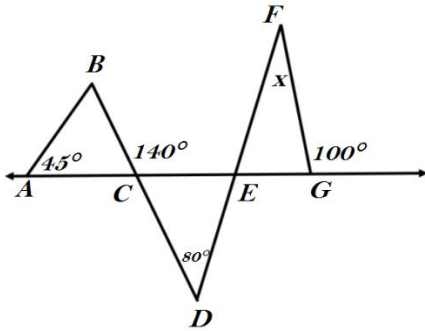
16. Find the missing side lengths. Leave your answers as radicals in simplest form.



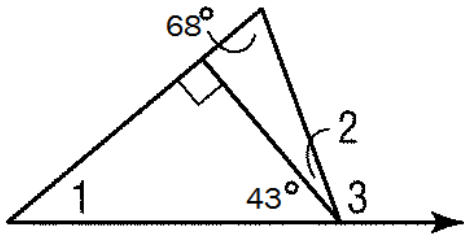
17. What is the classification of $\triangle ABC$ with vertices $A(0, 0)$, $B(4, 3)$, and $C(4, -3)$ by its sides?



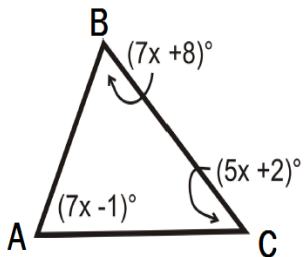
18. In the figure below, points A, C, E and G are collinear; B, C, D are collinear; and D, E, F are collinear. Angle measures are as marked and $m\angle D$ is 80° . What is the measure of $\angle EFG$?



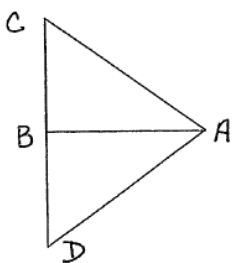
19. Find the measure of each numbered angle.



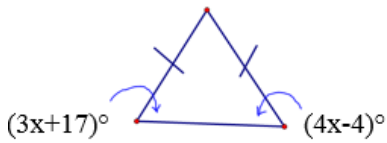
20. Find x .



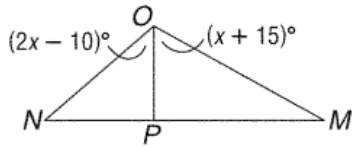
21. If AB is the median, explain what is true geometrically.



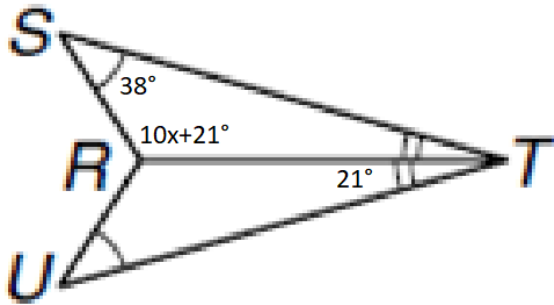
22. Find x .



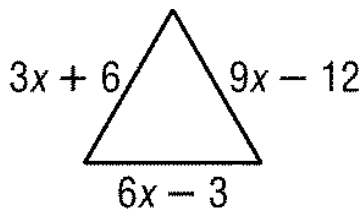
23. If PO is an angle bisector of $\angle MON$, find x .



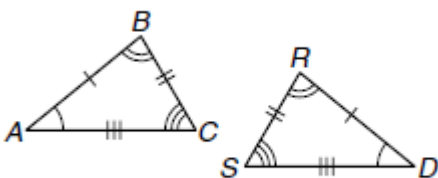
24. Is $\triangle STR \cong \triangle UTR$? If so, explain how you know. Then find x .



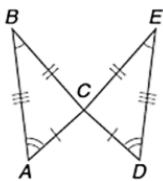
25. Find the length of each side of the equilateral triangle below.



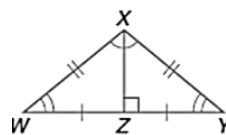
26. Identify the congruent triangles in the given figure



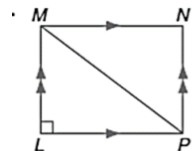
$\triangle ABC \cong$ _____



$\triangle ABC \cong$ _____

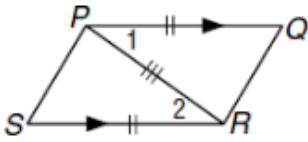


$\triangle XYZ \cong$ _____



$\triangle MLP \cong$ _____

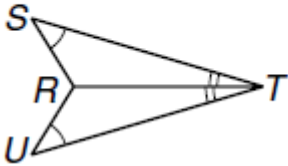
27.



$\Delta SRP \cong$ _____

- a. Short cut congruence used _____
- b. Name the 3 congruent corresponding parts:

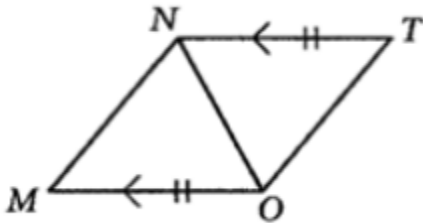
28.



$\Delta STR \cong$ _____

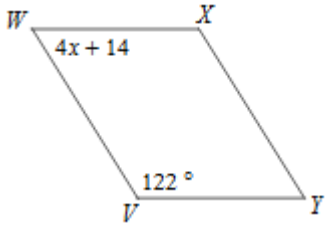
- a. Short cut congruence used _____
- b. Name the 3 congruent corresponding parts:

29. Write a two column proof.
Given: $NT \parallel MO$ and $NT \cong MO$
Prove: $\angle M \cong \angle T$

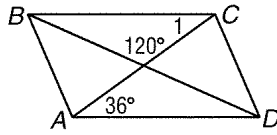


Directions: Solve for the missing angle or variable for the following PARALLELOGRAMS.

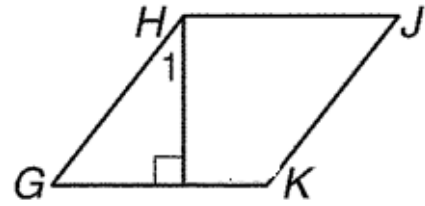
30. Find x .



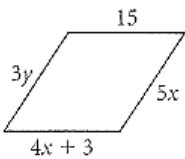
31. Find $m < 1$.



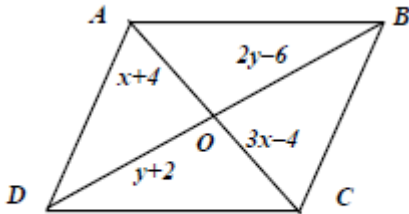
32. $m \angle JKG = 151^\circ$, find $m \angle$



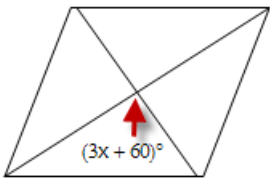
33. Find x and y if the figure below is a parallelogram.



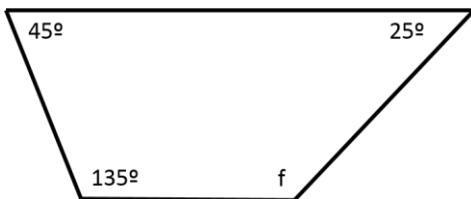
34. $ABCD$ is a parallelogram. Find x , y , BD and AC . Show your geometry and justifications.



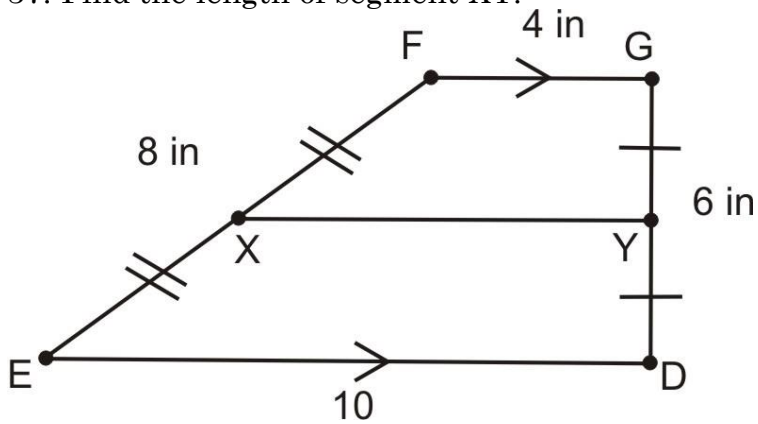
35. Find x if the figure below is a rhombus. Show your geometry and justifications.



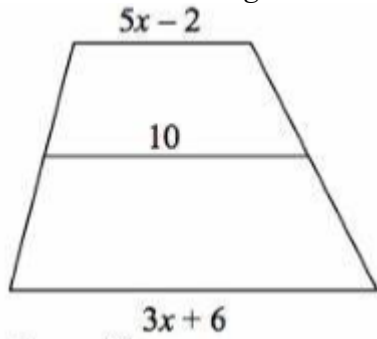
36. The figure below is a trapezoid. Find f .



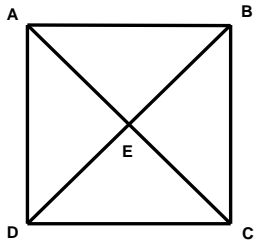
37. Find the length of segment XY.



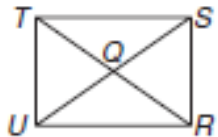
38. 10 is the length of the median of the trapezoid below. Find x.



39. If ABCD is a square. Find $m\angle BEC$.



40. In rectangle RSTU, $m\angle STR = 8x + 3$ and $m\angle UTR = 16x - 9$. Find x and $m\angle STR$. Show your geometry and justifications.



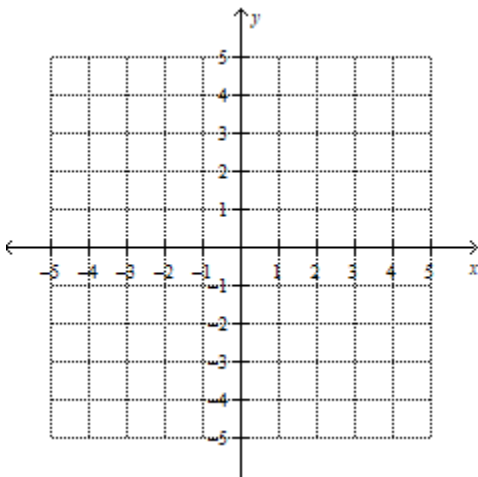
41. Given the set of vertices and the slopes and distances, classify polygon EFGH. Choose all that apply.

- I. Square II. Parallelogram III. Rectangle IV. Rhombus**

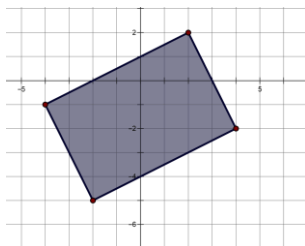
Slope $EF = 0$ Slope $FG = \frac{1}{7}$ Slope $GH = 0$ Slope of $HE = \frac{1}{7}$	Distances $EF = 12$ Units $FG = 12$ Units $GH = 12$ Units $EH = 12$ Units
---	---

- a. I and IV only
- b. II and IV only
- c. I, II, III only
- d. I, II, III and IV

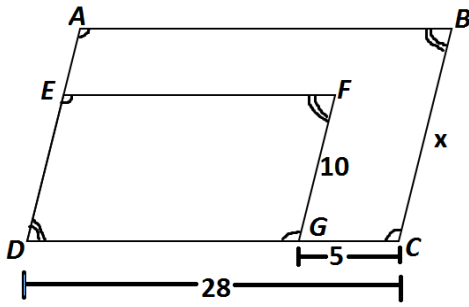
42. If ABCD is a parallelogram with points $A(-4,1)$, $B(-1,4)$, $C(5,4)$, find the coordinates of D.



43. Determine whether the figure with vertices $F(-4,-1)$, $G(-2,-5)$, $H(4,-2)$ and $J(2,2)$ is a parallelogram, rectangle, rhombus, and/or square.

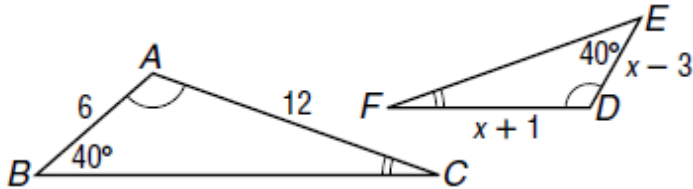


44. Find x . Round to the nearest hundredth.



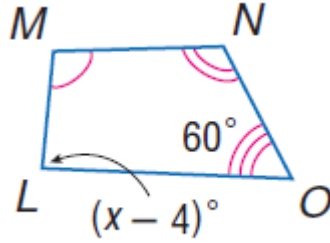
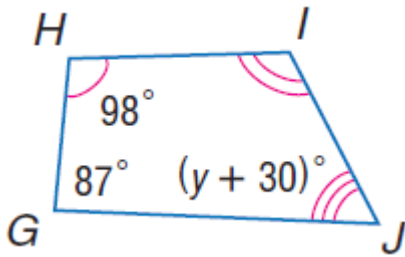
$x =$ _____

45. Find x .



$x =$ _____

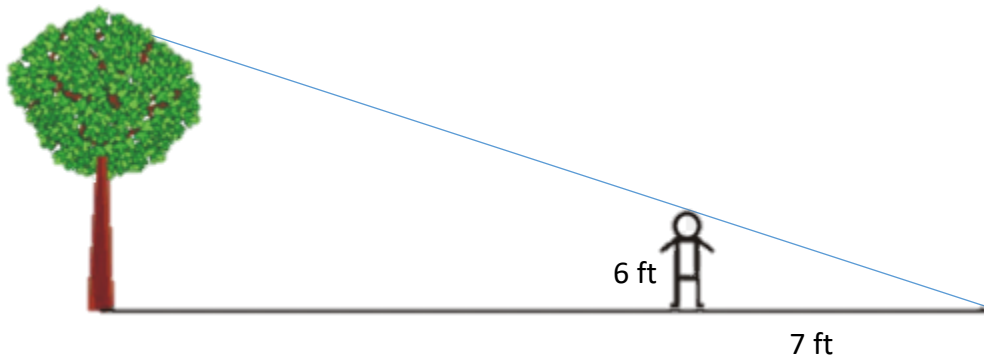
46. Given Quadrilateral HIJG ~ Quadrilateral MNOL, find x and y .



$x =$ _____

$y =$ _____

47. "A six foot tall man casts a 7 foot shadow. A nearby tree casts a 27 foot shadow. Find the height of the tree."



Solutions:

1. $d = 4\sqrt{13}$,
Midpoint: (2,-2)
Slope: $-2/3$
2. $x = 11, JK = 29$
3. $x = 2, SR = 6$
4. $x = 6\text{ft}$
5. $x = \sqrt{730}\text{mi}$
6. $P'(-5,2), A'(-4,0), R'(0,3)$
7. Draw the line $y = 0$
8. $T'(4,-1), G'(2,-3), V'(1,-3), Q'(1,-2)$
9. $x = 6$
10. $x = 20$
11. $x = 15, \angle FBD = 35^\circ, \angle 1 = 55^\circ$
12. // lines for congruent alt. int. \angle s (a, f), // lines for congruent alt. ext. \angle s (b), // lines for congruent corresponding \angle s (c,d), // lines for suppl/ con. int. \angle s (e)
13. $x = 11$
14. $x = 4$
15. B(2k,0) 2. N(-2b,0) M(0,c)
16. answers listed in alphabetical order
 - a. $5\sqrt{2}, 5$
 - b. 7,7
 - c. $4\sqrt{2}$
 - d. $20, 10\sqrt{3}$
 - e. 8, 4
 - f. $2\sqrt{3}, 2$
17. MUST SHOW TONS OF WORK!
Isosceles
18. 40°
19. $\angle 1 = 47^\circ, \angle 2 = 22^\circ, \angle 3 = 115^\circ$
20. 9
21. $AB \cong CB$
22. 21
23. 25
24. $x = 10, \angle URT = 121^\circ$
25. All sides are 15 units
26. $\triangle DRS, \triangle DEC, \triangle XWZ, \triangle PNM$
27. $\triangle QPRN$ by SAS. Must list out reasons.
28. $\triangle UTR$ by AAS. Must list out reasons.
29. Proof
30. 11
31. 36
32. 61
33. $x=3, y = 5.$
34. $x = 4, y = 8$
35. 10
36. 155
37. 7in
38. 2
39. 90°
40. $x = 4, m \angle STR = 35^\circ$
41. b
42. D(2,1)
43. MUST SHOW ALL SLOPES AND ALL DISTANCES. FGHJ is a parallelogram and rectangle only.
44. 12.17
45. 7
46. $x = 91^\circ, y = 30^\circ$
47. 23.1429ft