

Name: Key

Date: \_\_\_\_\_

**Missing Angles: Solve for x.**

1.  $19x + 10 = 180$   
 $19x = 170$   
 $x = 10$

2.  $4x + 24 = 7x + 3$   
 $21 = 3x$   
 $x = 7$

3.  $5x + 140 = 180$   
 $5x = 40$   
 $x = 8$

4.  $\angle ABC$  measures  $82^\circ$   
 $x + 7x + 2 = 82$   
 $8x + 2 = 82$   
 $8x = 80$   
 $x = 10$

5.  $2x + 4 = x + 60$   
 $x = 56$

6.  $(14x + 6) = 76$   
 $14x = 70$   
 $x = 5$

7.  $\angle 1$  and  $\angle 2$  are complementary. Solve for x and the measure of both angles.

$\angle 1 = 12x + 4$   
 $\angle 2 = 9x + 2$

$21x + 6 = 90$   
 $21x = 84$   
 $x = 4$

$\angle 1 = 52$   
 $\angle 2 = 38$

8. The measure of one angle is 38 less than the measure of its supplement. Find the measure of each angle.

$\angle 1 = x$   
 $\angle 2 = x - 38$

$2x - 38 = 180$   
 $2x = 218$   
 $x = 109$

$\angle 1 = 109$   
 $\angle 2 = 71$

9. One of two supplementary angles is  $123^\circ$  less than twice its supplement. Find the measure of both angles.

$\angle 1 = x$   
 $\angle 2 = 2x - 123$

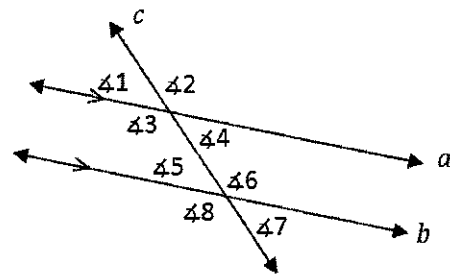
$3x - 123 = 180$   
 $3x = 303$   
 $x = 101$

$\angle 1 = 101$   
 $\angle 2 = 79$

**Parallel Lines:**

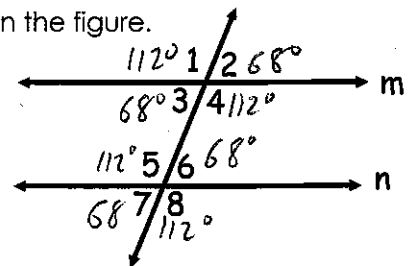
Name the angles listed and the special property.

- 10.  $\angle 1$  and  $\angle 5$  corresponding / congruent
- 11.  $\angle 4$  and  $\angle 6$  cons. interior / supplementary
- 12.  $\angle 2$  and  $\angle 8$  alternative exterior / congruent
- 13.  $\angle 4$  and  $\angle 5$  alternate exterior / congruent



14. Given  $m \parallel n$  and  $m \perp c$ , find the measures of all the numbered angles in the figure.

$m\angle 8 = 112^\circ$   
 $m\angle 1 = 112^\circ$   
 $m\angle 3 = 68^\circ$   
 $m\angle 5 = 112^\circ$   
 $m\angle 2 = 68^\circ$   
 $m\angle 4 = 112^\circ$   
 $m\angle 6 = 68^\circ$   
 $m\angle 7 = 68^\circ$



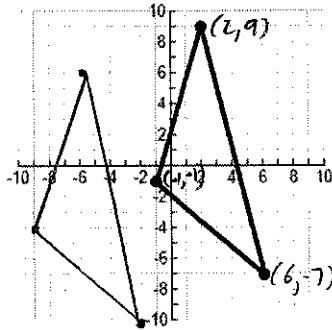
**Solve for x.**

15.  $3x - 50 = 2x - 5$   
 $x = 45$

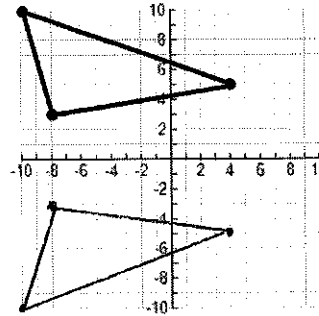
16.  $9x + 45 = 180$   
 $x = 15$

Draw the image of each figure, using the given transformation.

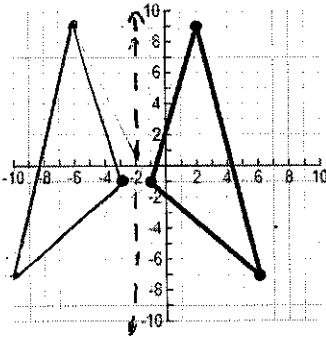
17. Translation  $(x, y) \rightarrow (x - 8, y - 3)$



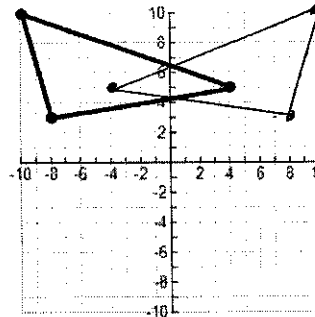
18. Reflection across the **x-axis**.



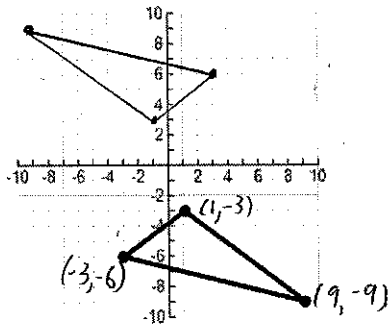
19. Reflection across the line  $x = -2$



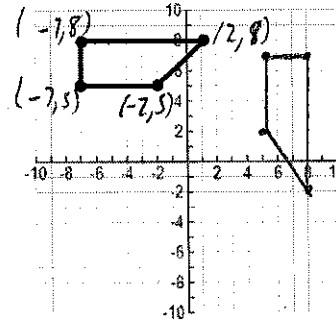
20. Reflection across the **y-axis**.



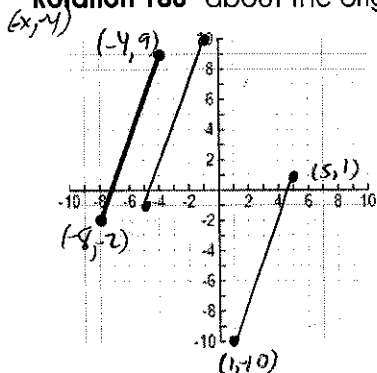
21. Rotation  $180^\circ$  about the origin  
 $(-x, -y)$



22. Rotation  $90^\circ$  clockwise about the origin.  
 $(y, -x)$



23. Translation  $(x, y) \rightarrow (x + 9, y - 8)$   
 Rotation  $180^\circ$  about the origin.



24. Rotation  $90^\circ$  CCW about the origin  
 Reflection about the line  $y = x$ .  $(y, x)$

