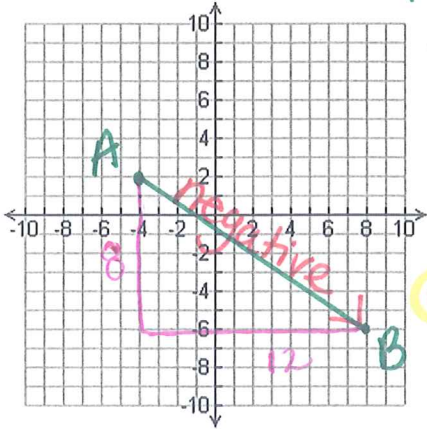


Directions: Use the Pythagorean Theorem or Distance Formula to find the distance of each segment, and then find the midpoint of each segment and slope. You must simplify radicals and fractions!!!! You must show all work for each problem.

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



Distance
 Pyth. Thm!!
 $8^2 + 12^2 = AB^2$
 $64 + 144 = AB^2$
 $\sqrt{208} = AB$
 $4\sqrt{16} \cdot \sqrt{13} \quad AB = 4\sqrt{13}$

Distance: $4\sqrt{13}$

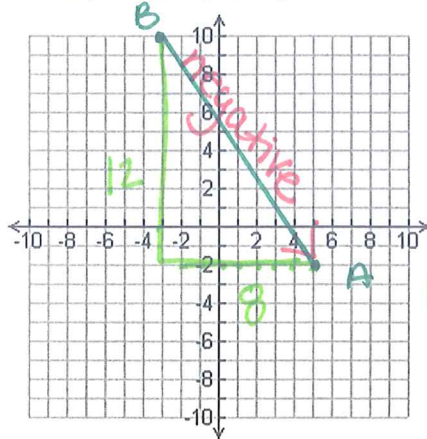
Midpoint: $(2, -2)$

midpt formula!
 $(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2})$

Slope: $-\frac{2}{3}$

Slope = $\frac{\text{Rise}}{\text{Run}}$
 $(\frac{-4+8}{2}, \frac{2+(-6)}{2})$
 $(\frac{4}{2}, \frac{-4}{2})$
 Simplify
 $(2, -2)$
 $\text{Slope} = -\frac{8 \div 4}{12 \div 4} = -\frac{2}{3}$

2. $A(5,-2), B(-3,10)$



Distance
 $12^2 + 8^2 = AB^2$
 $144 + 64 = AB^2$
 $\sqrt{208} = AB$

Distance: $4\sqrt{13}$

Midpoint: $(1, 4)$

Slope: $-\frac{3}{2}$

midpoint
 $(\frac{5+(-3)}{2}, \frac{-2+10}{2})$
 $(\frac{2}{2}, \frac{8}{2}) = (1, 4)$

slope = $-\frac{12 \div 4}{8 \div 4} = -\frac{3}{2}$

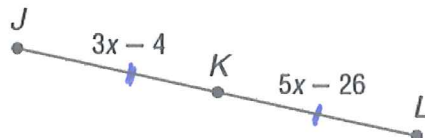
oops! didn't see that this was same.

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

3. 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.

$\overline{JK} \cong \overline{LK}$

def of midpoint



$3x-4 = 5x-26$

$-4 = 2x-26$

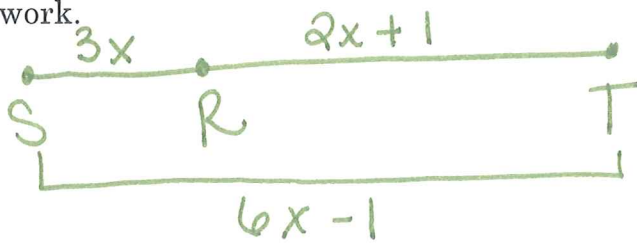
$22 = 2x$

$11 = x$

$JK = 3(11) - 4$ substitution

$JK = 29 \text{ units}$

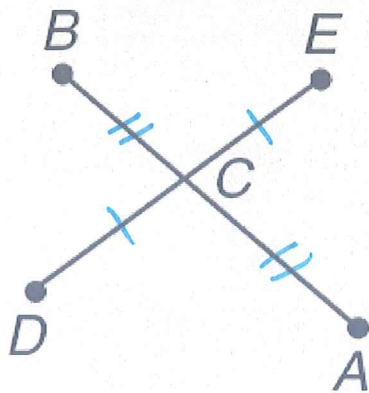
4. Find the value of x and SR if R is between S and T . $SR = 3x$, $RT = 2x + 1$, $ST = 6x - 1$. Draw, mark, and label your figure. You must start this problem with a geometry step. Show all of your work.



Segment addition
 $SR + RT = ST$
 $3x + 2x + 1 = 6x - 1$
 $5x + 1 = 6x - 1$
 $\quad +1 \quad +1$
 $5x + 2 = 6x$
 $-5x \quad -5x$
 $2 = x$

$x = 2$
 $SR = 6$

5. BA and DE bisect each other and intersect at point C . If $BC = 10x - 5$, $AC = 6x + 3$, $DC = 2y - 11$ and $EC = y + 3$, find x , y , and the lengths of DE and AB .



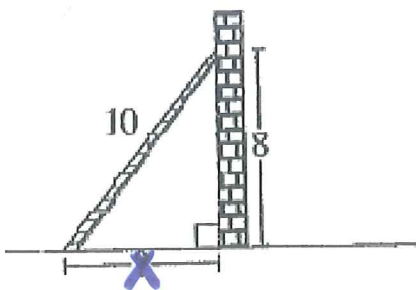
$BC \cong AC$ def of bisect
 $10x - 5 = 6x + 3$
 $4x - 5 = 3$
 $\quad +5 \quad +5$
 $4x = 8$
 $\quad \underline{4} \quad \underline{4}$
 $x = 2$

$DC = EC$ def of seg bisect.
 $2y - 11 = y + 3$
 $y - 11 = 3$
 $\quad \underline{+11} \quad \underline{+11}$
 $y = 14$

$DE = 2(14) - 11 + 14 + 3$
 $DE = 34$

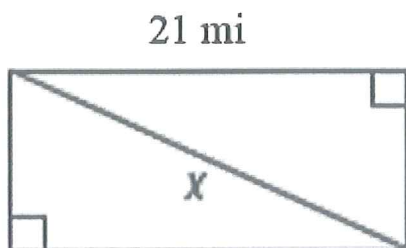
$AB = 6(2) + 3 + 10(2) - 5$
 $AB = 30$

6. A ladder is 10 ft 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?



$x^2 + 8^2 = 10^2$
 $x^2 + 64 = 100$
 $x^2 = 36$
 $x = 6 \text{ ft}$

7. Find x .



17 mi

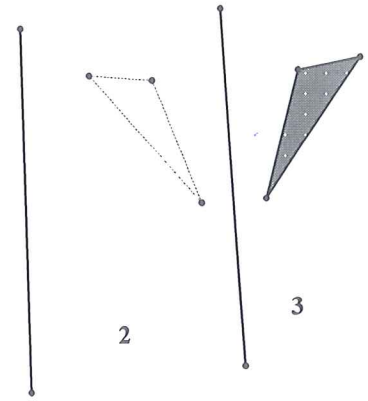
Pyth. Thm

$21^2 + 17^2 = x^2$
 $441 + 289 = x^2$
 $730 = x^2$

$x = \sqrt{730} \text{ mi}$

Directions: Fill in the blanks based on the figure presented.

8. The composite of reflections over two parallel lines results in a translation.



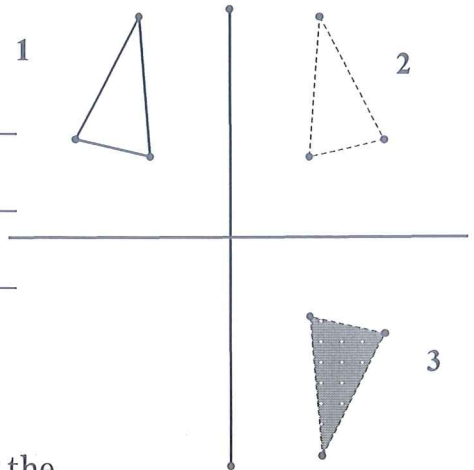
From 1 to 2 the transformation performed is : reflection

From 2 to 3 the transformation performed is : reflection

From 1 to 3 the transformation performed is : translation

9. The composite of reflections over two intersecting lines results in a Rotation.

This is a composite of transformations.



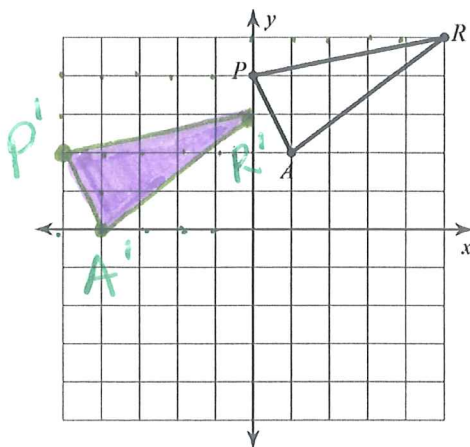
From 1 to 2 the transformation performed is : reflection

From 2 to 3 the transformation performed is : reflection

From 1 to 3 the transformation performed is : Rotation

Directions: Perform the given transformations.

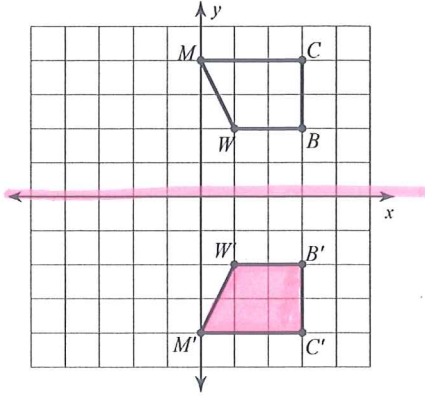
10. What will the coordinates of each point be of your image giving the transformation $(x,y) \rightarrow (x - 5, y - 2)$.



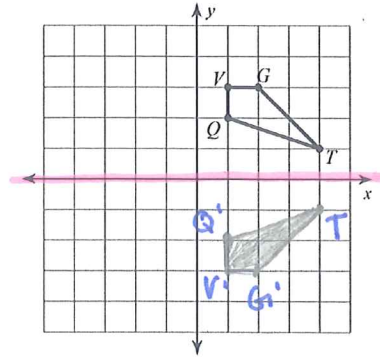
Left 5
down 2

$R' (0, 3)$
 $A' (-4, 0)$
 $P' (-5, 2)$

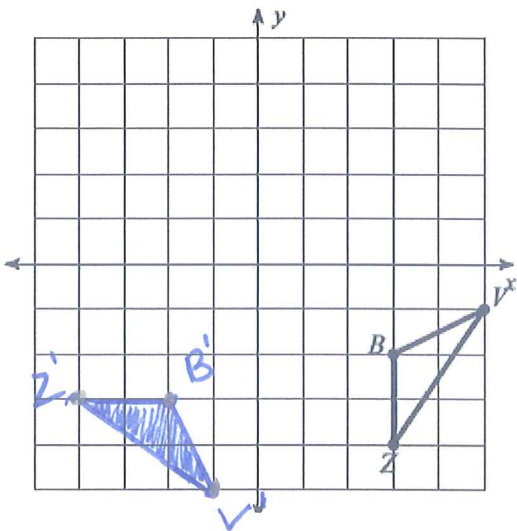
11. Draw the line of reflection.



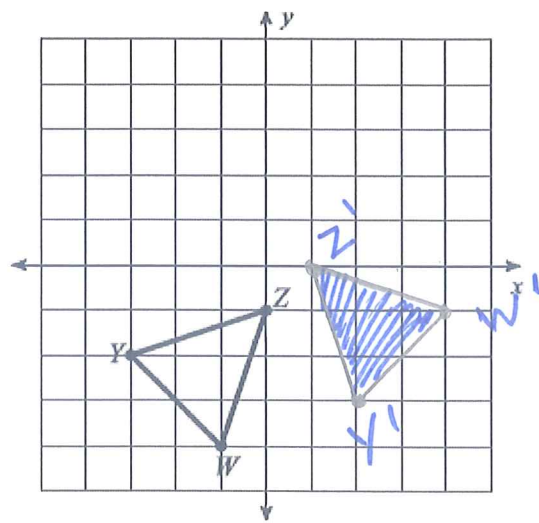
12. Reflect over the x-axis.



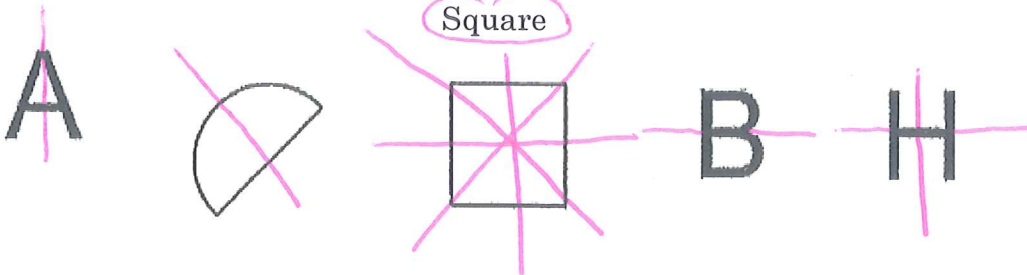
13. Rotate 90° clockwise around the origin.



14. Rotate 90° counterclockwise around the origin.



15. Sketch the lines of symmetry for each of the figures below.



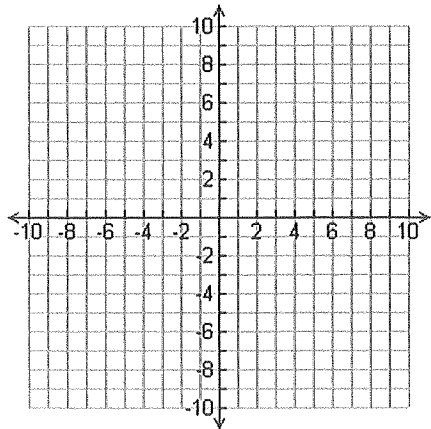
Directions: Use the Pythagorean Theorem or Distance Formula to find the distance of each segment, and then find the midpoint of each segment and slope. You must simplify radicals and fractions!!!! You must show all work for each problem.

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

Distance: _____

Midpoint: _____

Slope: _____

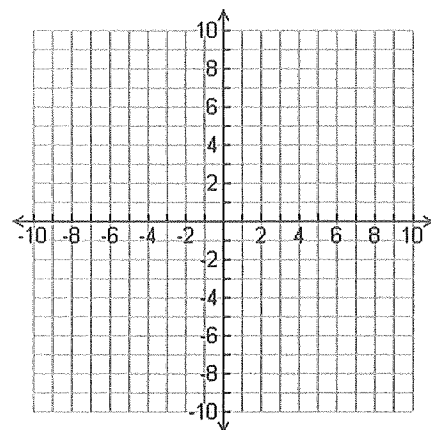


2. A(5,-2), B(-3,10)

Distance: _____

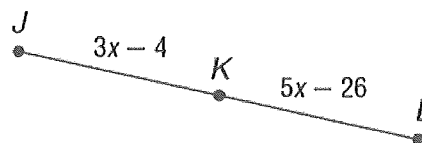
Midpoint: _____

Slope: _____



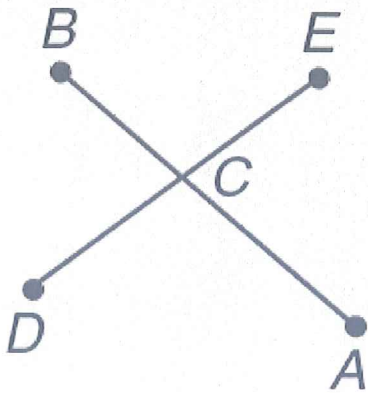
Directions: Answer each question. Show your work and reasoning.

3. 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.

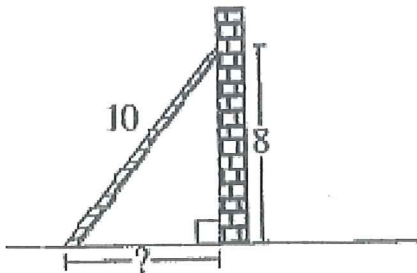


4. Find the value of x and SR if R is between S and T . $SR = 3x$, $RT = 2x + 1$, $ST = 6x - 1$. Draw, mark, and label your figure. You must start this problem with a geometry step. Show all of your work.

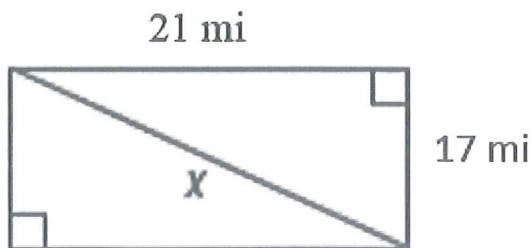
5. BA and DE bisect each other and intersect at point C . If $BC = 10x - 5$, $AC = 6x + 3$, $DC = 2y - 11$ and $EC = y + 3$, find x , y , and the lengths of DE and AB .



6. 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?



7. Find x .



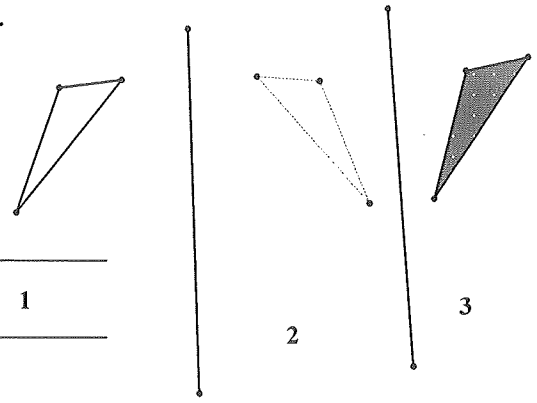
Directions: Fill in the blanks based on the figure presented.

8. The composite of reflections over two parallel lines results in a _____.

From 1 to 2 the transformation performed is : _____

From 2 to 3 the transformation performed is : _____

From 1 to 3 the transformation performed is : _____



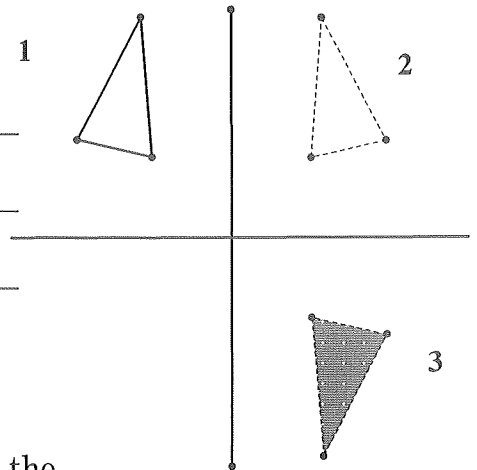
9. The composite of reflections over two intersecting lines results in a _____.

This is a composite of transformations.

From 1 to 2 the transformation performed is : _____

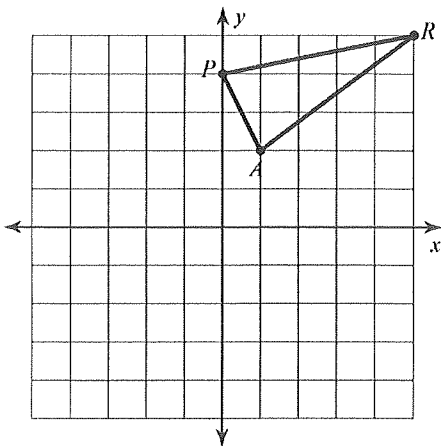
From 2 to 3 the transformation performed is : _____

From 1 to 3 the transformation performed is : _____

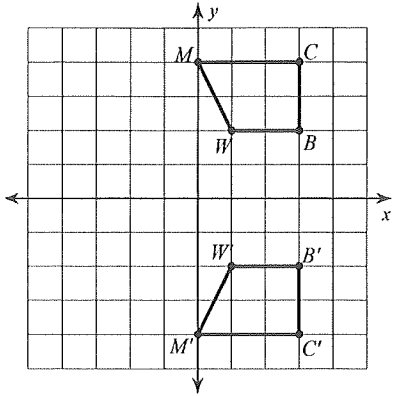


Directions: Perform the given transformations.

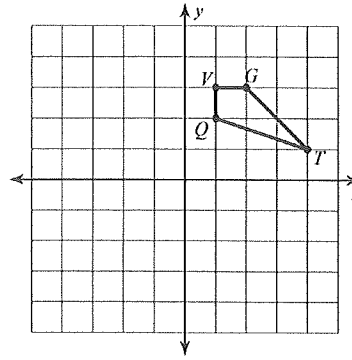
10. What will the coordinates of each point be of your image giving the transformation $(x,y) \rightarrow (x - 5, y - 2)$.



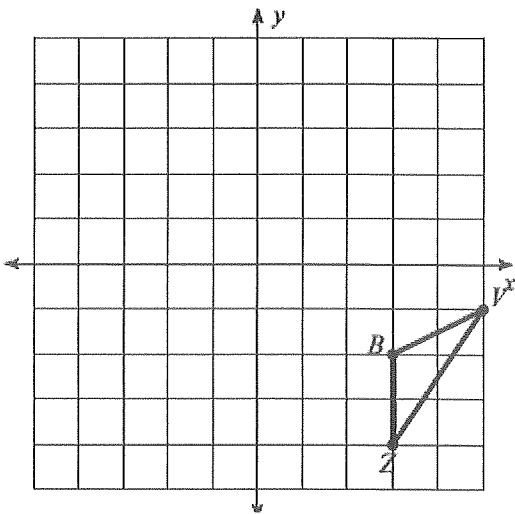
11. Draw the line of reflection.



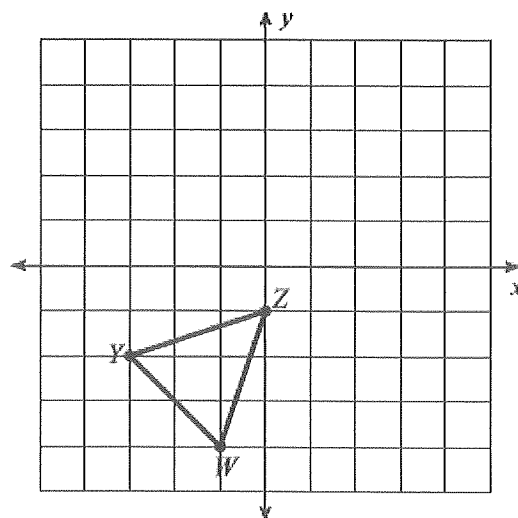
12. Reflect over the x-axis.



13. Rotate 90° clockwise around the origin.



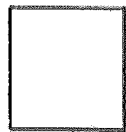
14. Rotate 90° counterclockwise around the origin.



15. Sketch the lines of symmetry for each of the figures below.

Square

A



B

H