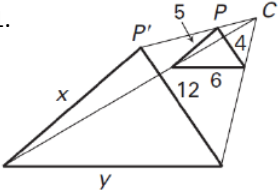
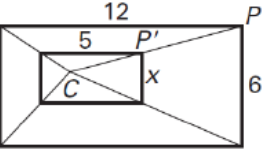


Unit 10.7 worksheet Dilations

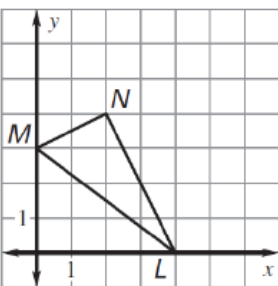
Find the scale factor. Tell whether the dilation is a reduction or an enlargement. Then find the value of the variables.

1.  Scale factor: _____
 Type of dilation: _____
 $x = \underline{\hspace{2cm}}$ $y = \underline{\hspace{2cm}}$

2.  Scale factor: _____
 Type of dilation: _____
 $x = \underline{\hspace{2cm}}$

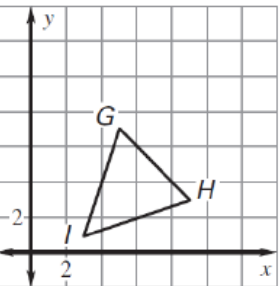
Use the origin as the center of the dilation and the given scale factor to find the coordinates of the vertices of the image of the polygon.

3. $k = 3$



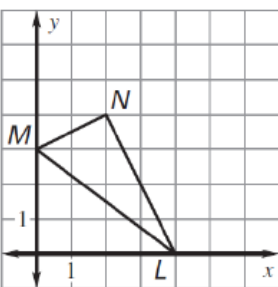
$L'(\quad, \quad)$
 $M'(\quad, \quad)$
 $N'(\quad, \quad)$

4. $k = \frac{1}{3}$



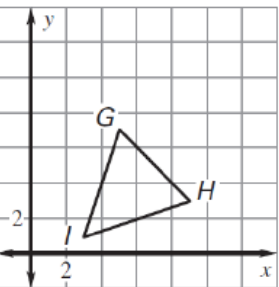
$G'(\quad, \quad)$
 $H'(\quad, \quad)$
 $I'(\quad, \quad)$

5. $k = 2$



$L'(\quad, \quad)$
 $M'(\quad, \quad)$
 $N'(\quad, \quad)$

6. $k = \frac{5}{2}$



$G'(\quad, \quad)$
 $H'(\quad, \quad)$
 $I'(\quad, \quad)$

A dilation maps A to A' and B to B'. Find the scale factor of the dilation. Find the center of the dilation.

7. $A(4, 2), A'(5, 1), B(10, 6), B'(8, 3)$ Scale factor: _____ Center of dilation: (\quad, \quad)

8. $A(1, 6), A'(3, 2), B(2, 12), B'(6, 20)$ Scale factor: _____ Center of dilation: (\quad, \quad)

9. $A(3, 6), A'(6, 3), B(11, 10), B'(8, 4)$ Scale factor: _____ Center of dilation: (\quad, \quad)

10. $A(-4, 1), A'(-5, 3), B(-1, 0), B'(1, 1)$ Scale factor: _____ Center of dilation: (\quad, \quad)

The vertices of parallelogram ABCD are $A(1, 1)$, $B(3, 5)$, $C(11, 5)$, and $D(9, 1)$.

Give the coordinates of the image of the parallelogram after a composition of the transformations in the order they are listed.

11. Translation: $(x, y) \rightarrow (x + 5, y - 2)$

then Dilation: centered at the origin with a scale factor of $\frac{3}{5}$

$A''(\quad , \quad)$

$B''(\quad , \quad)$

$C''(\quad , \quad)$

$D''(\quad , \quad)$

12. Dilation: centered at the origin with a scale factor of 2

then Reflection: in the x-axis

$A''(\quad , \quad)$

$B''(\quad , \quad)$

$C''(\quad , \quad)$

$D''(\quad , \quad)$

You are projecting images onto a wall with a flashlight. The lamp of the flashlight is 8.3 centimeters away from the wall. The preimage is imprinted onto a clear cap that fits over the end of the flashlight. This cap has a diameter of 3 centimeters. The preimage has a height of 2 centimeters and the lamp of the flashlight is located 2.7 centimeters from the preimage.

13. Sketch a diagram of the dilation.

Sketch:

14. Find the diameter of the circle of light
Projected onto the wall from the flashlight.

Diameter of circle of light: _____

15. Find the height of the image
Projected onto the wall.

Height of projected image: _____