Name: KEY Date: Block:

Advanced Geometry - Ch. 12 Review Pt. 2

1. A dilation maps the preimage (-2, 3) onto the image (4, -6). What is the scale factor of the dilation?

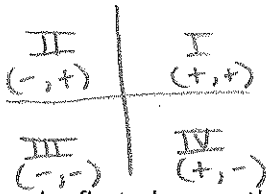
$k = -2$

2. The base of a triangle measures 5 cm and the height measures 7 cm. After a dilation is performed by a scale factor of 3, what is the area of the new triangle.

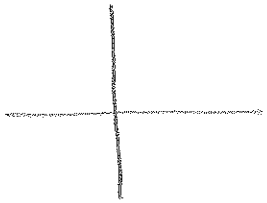
$A = \frac{1}{2}(7)(5) = 17.5\ cm^2$

$17.5 \cdot (3)^2 = 157.5\ cm^2$

3. Draw a coordinate plane and label the quadrants. Label the x and y values as positive or negative in each quadrant.



4. A triangle is located in quadrant IV and reflected across the x-axis, and then across the y-axis. Describe how this could have been done in one transformation.



180° rotation counterclockwise

5. A reflection over a line, followed by a reflection over a parallel line is equivalent to translation.

6. Using the word, MONEY , which letters have horizontal line symmetry? Vertical Line symmetry? Neither? Both?

N O E M, O, Y

7. A translation using the vector <-2, 5> is performed to create the image (4, -2). What are the coordinates of the preimage?

$(x, y) \rightarrow (x-2, x+5)$

$(6, -7) \rightarrow (4, -2)$

$\boxed{(6, -7)}$

8. What would the scale factor be of a dilation that rotates a figure 180^0 and makes the image a third of the size of the preimage?

$k = -\frac{1}{3}$

9. How many lines of symmetry does a regular octagon have?

8

10. If the preimage (4, -3) goes through a 270^0 clockwise rotation, what are the coordinates of the image?

$=$
90° counterclockwise

$(x,y) \rightarrow (-y,x)$

$\boxed{(3,4)}$

11. If the preimage (5, 2) goes through a 90^0 clockwise rotation, what are the coordinates of the image?

$(x,y) \xrightarrow{180} (-x,-y)$

$(-5,-2) \rightarrow \boxed{(2,-5)}$

$(x,y) \rightarrow (-y,x)$

12. How many lines of symmetry does a heptagon have? Does it have rotational symmetry? If yes, what is the angle of rotational symmetry and what is the order?

7 lines of symmetry

Yes - 51.43° rotational symmetry

order = 7