Name Control Class _____ Date _____

Unit 1 Study Guide

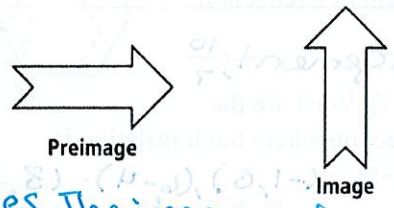
Form G

Lessons 9-1 through 9-4

Do you know HOW?

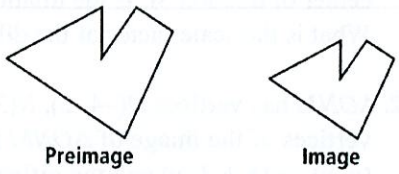
State whether the transformation appears to be an isometry. Explain.

1.



Yes. The image and pre-image are congruent

2.



No. The image and pre-image are not congruent.

3. If $GHIJ \rightarrow G'H'I'J'$, what is the image of I? What is the image of $\overline{GH}$?

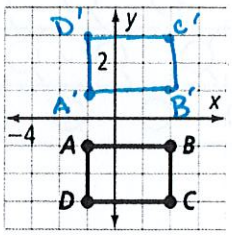
I', $G'H'$

4. Point $R(x, y)$ moves 13 units right and 14 units down. What is a rule that describes this translation?

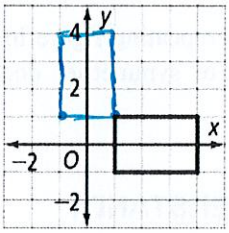
$(x, y) \rightarrow (x+13, y-14)$

Draw the image of each figure for the given transformation.

5. reflection across $y = 0$



6. 90° CCW rotation about the origin



7. Sketch the line(s) of symmetry. For rotational symmetry, state the angle of rotation.

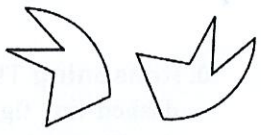
90°

Do you UNDERSTAND?

8. Reasoning The point $(-1, -1)$ is the image under the translation $(x, y) \rightarrow (x-5, y+5)$. What is its preimage?

(4, −6)

9. Reasoning The two images in the diagram are congruent. Is one a reflection image, a translation image, or a rotation image of the other?



Rotation

10. Open-Ended The word BEE has a horizontal line of symmetry. Find two other three-letter to five-letter words for which this is true.

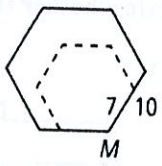
Name _____ Class _____ Date _____

Unit 1 Study Guide

Lessons 9-5 through 9-7

Do you know HOW?

1. The solid-line figure is a dilation of the dashed-line figure with center of dilation M. Is the dilation an enlargement or a reduction? What is the scale factor of the dilation?



enlargement; $\frac{10}{7}$

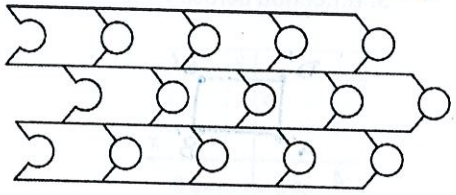
2. ΔONM has vertices $O(-4, 2)$, $N(3, 6)$, and $M(0, 3)$. What are the vertices of the image of ΔONM for a glide reflection where the translation is $(x, y) \rightarrow (x + 3, y)$ and the reflection line is $y = 1$? (-1,0), (6,-4), (3,-1)

3. A dilation has the center (0, 0). Find the image of the point (3, 11), given a scale factor of 3. (9,33)

4. A dilation has the center (0, 0). Find the image of the point (2, –4), given a scale factor of 4. (8,-16)

5. Is the transformation of $\overline{AB}$ with vertices $A(2, 3)$ and $B(-1, 2)$, first across $x = 4$, and then across $y = -2$, a translation or a rotation? For a translation, describe the direction and distance. For a rotation, tell the center of rotation and the angle of rotation. Rotation around (4,-2); 180°

6. What is the repeating figure in this tessellation? What types of symmetries does the tessellation have?



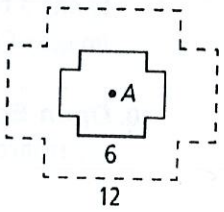
Do you UNDERSTAND?

7. **Compare and Contrast** Explain how a dilation is the same as or different from an isometry. A dilation has similar image and pre-image, but not congruent. Isometries have congruent preimage and image.

8. **Error Analysis** A student used image and preimage lengths of an enlargement to find a scale factor of $\frac{3}{4}$. Explain her possible error. An enlargement has a scale factor greater than 1. image is numerator. pre-image is denominator.

9. **Reasoning** Will a regular 19-gon tessellate a plane? Explain.

10. **Reasoning** The solid-line figure is a dilation of the dashed-line figure with center of dilation A. Tell whether the dilation is an enlargement or a reduction and find the scale factor of the dilation.



reduction; $\frac{1}{2}$