

Name: _____

Andy Weeks

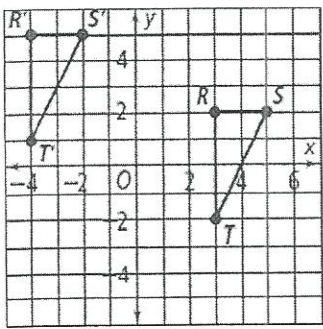
Period _____ Date _____

Geometry 22: MORE Practice with Transformations (9.1-9.3, 9.6) ☺

1. What is the difference between a preimage and an image?
2. What is rigid motion? Give examples of figures that are and are not rigid motion.

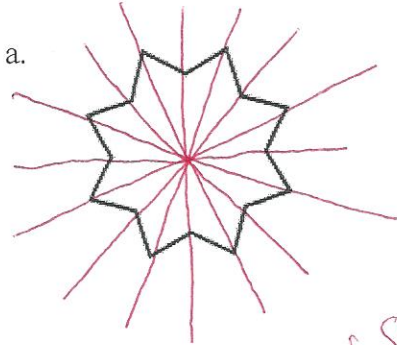
Rule	Pre-image coordinates	New coordinates	Describe this transformation;
$(x, y) \rightarrow (y, -x)$	(5, -2)	<i>(-2, -5)</i>	<i>Rotation 90°</i>
	(8, 1)	<i>(1, -8)</i>	
	(-9, -2)	<i>(-2, 9)</i>	
$(x, y) \rightarrow (x+2, y-4)$	(3, -7)	<i>(5, -11)</i>	<i>Translation right 2 down 4</i>
	(10, 8)	<i>(12, 4)</i>	
	(-2, -5)	<i>(0, -9)</i>	
$(x, y) \rightarrow (3x, 3y)$	(3, -7)	<i>(9, -21)</i>	<i>Enlargement s.f. = 3 Dilatation</i>
	(10, 8)	<i>(30, 24)</i>	
	(-2, -5)	<i>(-6, -15)</i>	

3. $\Delta R'S'T'$ is a translation image of ΔRST . What is a rule for the translation?



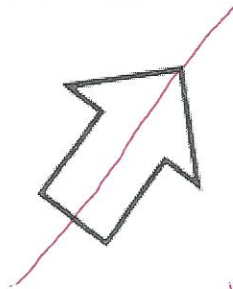
$(x, y) \rightarrow (x-7, y+3)$

4. Decide if each figure below has reflectional symmetry. If YES, draw all lines of symmetry.



8 lines of Sym.

b.



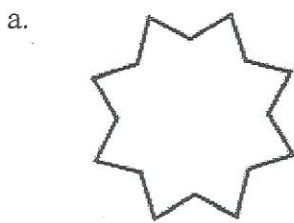
1 line

c.

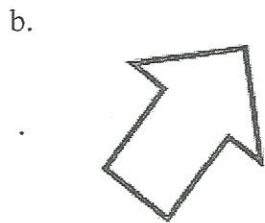


2 lines

5. Decide if each figure below has rotational symmetry. State the order and degree of rotation for each.



order 8
degree $\frac{360}{8} = 45^\circ$

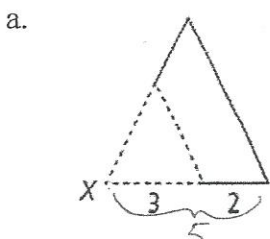


order 1 *no rotational symmetry*
degree no

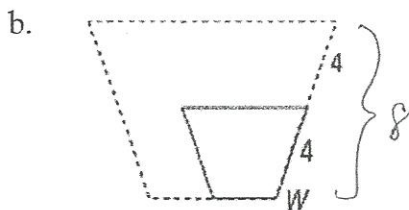


order 2
degree 180°

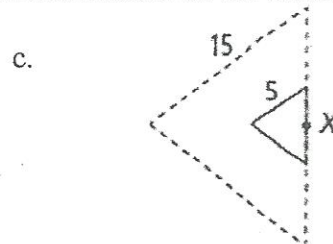
6. The solid-line figure is a dilation of the dashed-line figure. The labeled point is the center of dilation. Tell whether the dilation is an enlargement or a reduction. Then find the scale factor of the dilation.



enlargement
s.f. = $\frac{5}{3}$



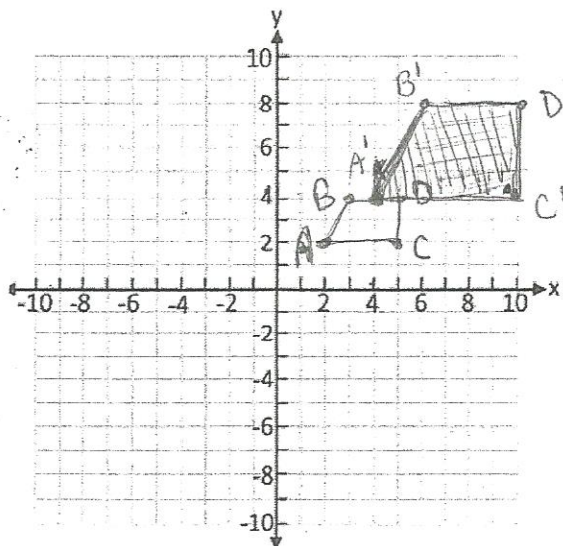
reduction
s.f. = $\frac{4}{8} = \frac{1}{2}$



reduction
s.f. = $\frac{5}{15} = \frac{1}{3}$

7. Graph the following preimage points. Then, dilate quadrilateral ABCD by a scale factor of 2. Give the new coordinates and plot the dilated figure.

- $A(2, 2) \Rightarrow A'(4, 4)$
- $B(3, 4) \Rightarrow B'(6, 8)$
- $C(5, 2) \Rightarrow C'(10, 4)$
- $D(5, 4) \Rightarrow D'(10, 8)$



UNIT 1 REVIEW:

8. $\angle 1$ and $\angle 2$ are complementary ^{90°} angles. $m\angle 1 = x^2 + 60$ and $m\angle 2 = 10x + 55$. Find x , $m\angle 1$ and $m\angle 2$.

$$x^2 + 60 + 10x + 55 = 90$$

$$x^2 + 10x + 115 = 90$$

$$x^2 + 10x + 25 = 0 \quad \text{Factor} \Rightarrow$$

$$(x+5)(x+5) = 0$$

$$x = -5$$

$m\angle 1 = x^2 + 60$
 $(-5)^2 + 60$
 $25 + 60$
 85°
 $m\angle 2 = 10(-5) + 55$
 $-50 + 55$
 5°