

Name: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Class: \_\_\_\_\_

Geometry  
 Unit 5  
 HW 5-5

1) Which capital letters have a horizontal line of symmetry?

B C D E H I K O X

2) Which capital letters has a vertical line of symmetry?

A H I M O T U V W X Y

3) Which capital letters have rotational symmetry (list the number of degrees)?

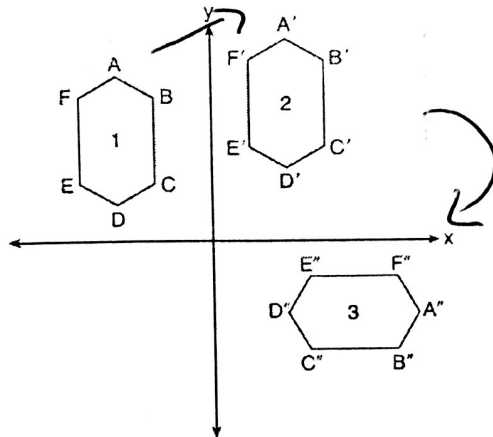
H I N O S X Z  $180^\circ$

4) The vertices of  $\triangle JKL$  have coordinates  $J(5,1)$ ,  $K(-2,-3)$ , and  $L(-4,1)$ . Under which transformation is the image  $\triangle J'K'L'$  not congruent to  $\triangle JKL$ ?

- (1) a translation of two units to the right and two units down
- (2) a counterclockwise rotation of 180 degrees around the origin
- (3) a reflection over the x-axis

(4) a dilation with a scale factor of 2 and centered at the origin *Changes size*

5) In the diagram below, congruent figures 1, 2, and 3 are drawn.



Which sequence of transformations maps figure 1 onto figure 2 and then figure 2 onto figure 3?

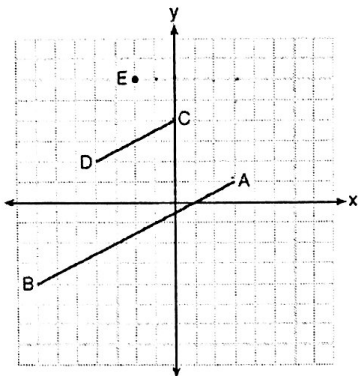
- (1) a reflection followed by a translation
  - (2) a rotation followed by a translation
  - (3) a translation followed by a reflection
  - (4) a translation followed by a rotation
- 6) If  $\triangle ABC$  is dilated by a scale factor of 3, which statement is true of the image  $\triangle A'B'C'$ ?

- (1)  $3A'B' = AB$
- (2)  $B'C' = 3BC$
- (3)  $m\angle A' = 3(m\angle A)$
- (4)  $3(m\angle C') = m\angle C$

$sf = \frac{1}{3}$

$\angle$ 's don't change

- 7) In the diagram below,  $\overline{CD}$  is the image of  $\overline{AB}$  after a dilation of scale factor  $k$  with center  $E$ .



PT	Slope	New slope
A → C	$\frac{5}{5} \cdot x$	$\frac{2}{2}$

$$\frac{5 \cdot x}{5} = \frac{2}{5}$$

$$x = \frac{2}{5}$$

Which ratio is equal to the scale factor  $k$  of the dilation?

(1)  $\frac{EC}{EA}$

~~(2)  $\frac{EA}{BA}$~~

~~(3)  $\frac{BA}{EA}$~~

(4)  $\frac{EA}{EC}$

→ larger than 1

- 8) The line  $3y = -2x + 8$  is transformed by a dilation centered at the origin. Which linear equation could be its image?

(1)  $2x + 3y = 5$

(3)  $3x + 2y = 5$

(2)  $2x - 3y = 5$

(4)  $3x - 2y = 5$

$$3y = -2x + 8$$

$$\frac{3y}{3} = \frac{-2x}{3} + \frac{8}{3}$$

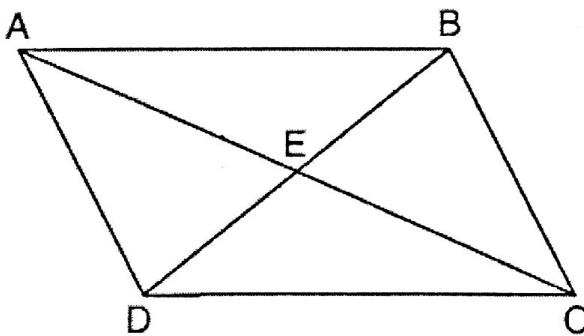
X	Y
-2	4
1	2
4	0

$$y = \left(\frac{-2}{3}x\right) + \frac{8}{3}$$

- 9) After a reflection over a line,  $\triangle A'B'C'$  is the image of  $\triangle ABC$ . Explain why triangle  $ABC$  is congruent to triangle  $A'B'C'$ .

reflections are isometries

10)



pts

A (-2, 4)	(-4, 8) A'
B (1, 2)	(2, 4) B'
C (4, 0)	(8, 4) C'

Must have same slope

Describe a single rigid motion that maps  $\triangle AED$  onto  $\triangle CEB$ .

$R_{180^\circ}$  centered at E  
or  
point reflection over E