

Name: \_\_\_\_\_  
 Period: \_\_\_\_\_

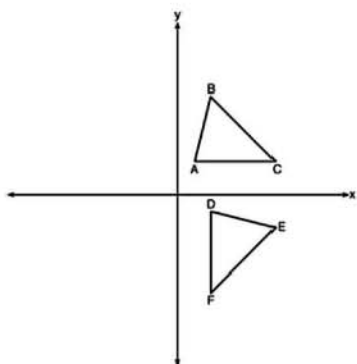
Date: \_\_\_\_\_  
 Mr. Valentino

Aim: Transformations Review

Directions: Fill in the missing information to complete the chart below

Transformation	Notation	Definition	Picture
Rotation	$R_{\text{degrees}}$	a transformation that <i>turns</i> a shape • Size stays the same - distance is preserved • position changes • orientation <del>changes</del> stays the same	
Reflection	$R_{x\text{-axis}}$	a transformation that <i>flips</i> a shape • size stays the same - distance preserved • position changes • orientation changes lettering	
Translation	$T_{(x,y)}$	a transformation that <i>slides</i> a shape • size stays the same • position changes • orientation stays the same	
Dilation	$D_k$	a transformation that <i>stretches/</i> <i>shrinks</i> a shape • size changes • position may change • orientation stays the same	

1. The image of  $\triangle ABC$  after a rotation of  $90^\circ$  clockwise about the origin is  $\triangle DEF$ , as shown below.



How can you determine the corresponding sides and angles?

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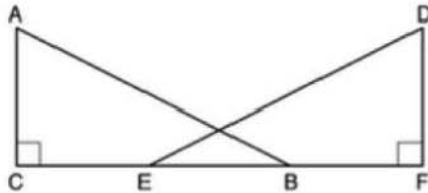


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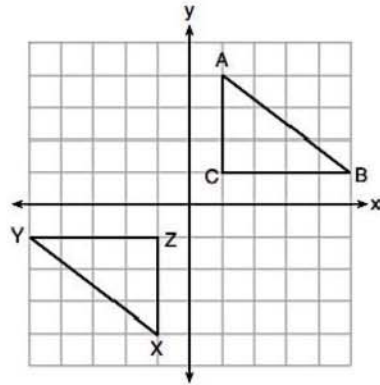
Which statement is true?

- (1)  $\overline{BC} \cong \overline{DE}$
- (2)  $\overline{AB} \cong \overline{DF}$
- (3)  $\angle C \cong \angle E$
- (4)  $\angle A \cong \angle D$

2. Given right triangles  $ABC$  and  $DEF$  where  $\angle C$  and  $\angle F$  are right angles,  $AC \cong DF$  and  $CB \cong FE$ . Describe a precise sequence of rigid motions which would show  $\triangle ABC \cong \triangle DEF$ .



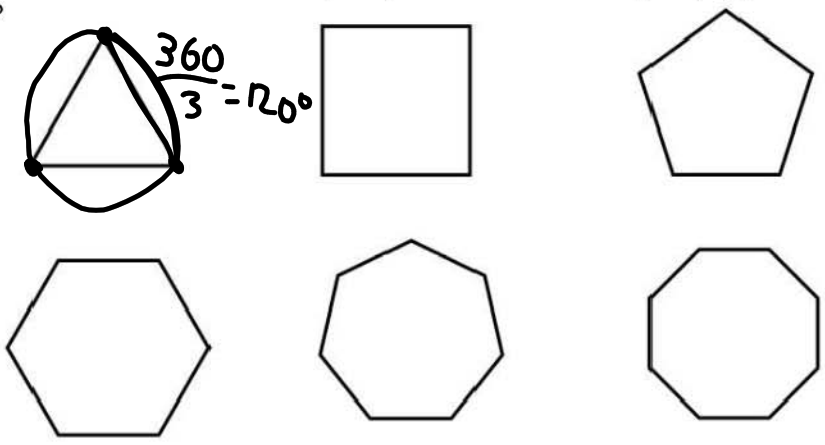
3. In the diagram below,  $\triangle ABC$  and  $\triangle XYZ$  are graphed.



A rotation is a rigid motion that preserves distance.

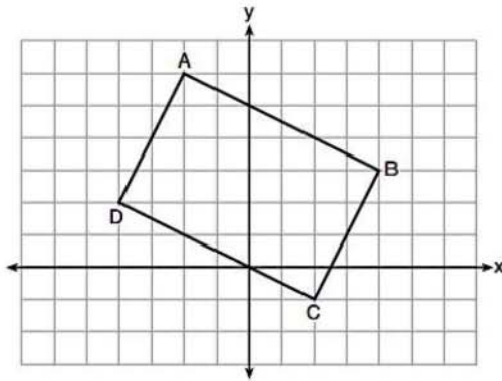
Use the properties of rigid motions to explain why  $\triangle ABC \cong \triangle XYZ$ .

4. What is the **minimum** number of degrees you have to turn each regular polygon to map it back onto itself?



5. Which regular polygon has a minimum rotation of  $45^\circ$  to carry the polygon onto itself?
- (1) octagon
  - (2) decagon
  - (3) hexagon
  - (4) pentagon

6. Quadrilateral  $ABCD$  is graphed on the set of axes below.



When  $ABCD$  is rotated  $90^\circ$  in a counterclockwise direction about the origin, its image is quadrilateral  $A'B'C'D'$ . Is distance preserved under this rotation, and which coordinates are correct for the given vertex?

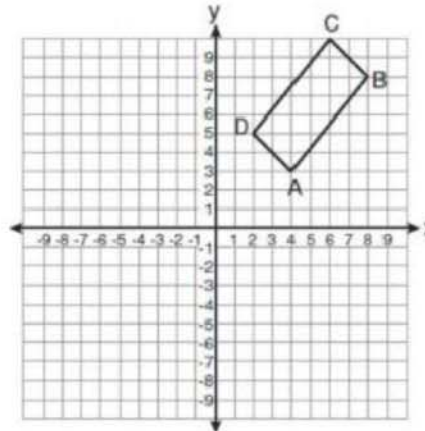
- (1) no and  $C'(1,2)$
- (2) no and  $D'(2,4)$
- (3) yes and  $A'(6,2)$
- (4) yes and  $B'(-3,4)$

7. The rectangle  $ABCD$  shown in the diagram below will be reflected across the  $x$ -axis.

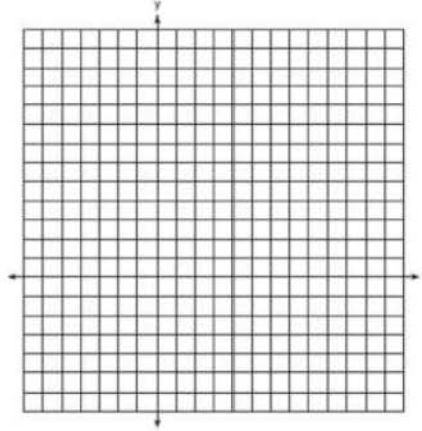
- a. What will not be preserved?
- 1) slope of  $AB$
  - 2) parallelism of  $AB$  and  $CD$
  - 3) length of  $AB$
  - 4) measure of  $\angle A$

b. Draw rectangle  $A'B'C'D'$  after  $r_{x\text{-axis}}$ .

c. Draw rectangle  $A''B''C''D''$  after  $T_{(-8, 10)} A'B'C'D'$



8. On the accompanying set of axes, graph  $ABC$  with coordinates  $A(-1, 2)$ ,  $B(0, 6)$ , and  $C(5, 4)$ . Then graph  $A'B'C'$ , the image of  $ABC$  after a dilation of 2



9. Which transformation does not always produce an image that is congruent to the original figure?

- 1) translation
- 2) dilation
- 3) rotation
- 4) reflection

10. Is the following transformation a translation or rotation? Justify your answer.

**F**

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**F**