

Name:

# Level 1 - Transformation

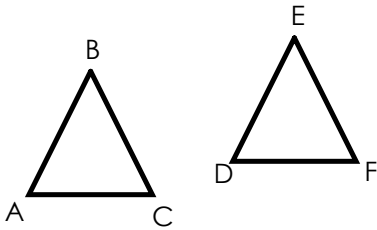
Review Packet

**STUDY FOR 3 HOURS!**

Key Facts

### Rigid Motions

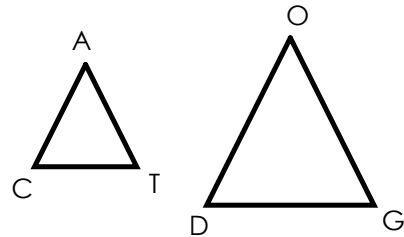
Rigid motions preserve the size of the side lengths and angle measures. For this reason, the image is always **congruent** to the pre-image.



A translation along BE maps  $\triangle ABC$  onto  $\triangle DEF$

### Dilations

Dilations change the side length but preserves the angle measures. For this reason, the image is always **similar** to the pre-image



A dilation with a scale factor of 2 maps  $\triangle CAT$  onto  $\triangle DOG$

#### Minimum rotation

$$\frac{360}{n}$$

#### Scale Factor

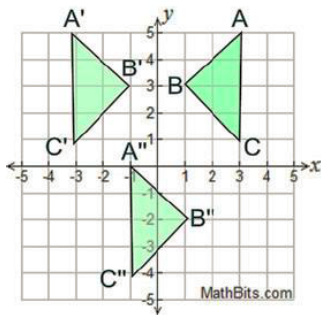
$$k = \frac{\text{Image}}{\text{Pre-Image}}$$

Skill: Multiple Choice Practice

1) Quadrilateral  $ABCD$  undergoes a transformation, producing quadrilateral  $A'B'C'D'$ . For which transformation would the area of  $A'B'C'D'$  not be equal to the area of  $ABCD$ ?

- (1) a rotation of  $90^\circ$  about the origin
- (2) a reflection over the  $y$ -axis
- (3) a dilation by a scale factor of 2
- (4) a translation defined by  $(x,y) \rightarrow (x + 4, y - 1)$

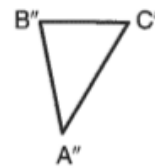
2)



Which of the following descriptions (pertaining to the graph at the right) is true?

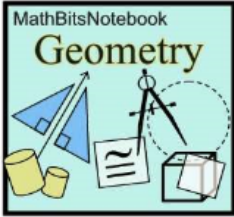
- 1)  $\triangle A''B''C''$  is a translation of  $\triangle ABC$ .
- 2)  $\triangle A''B''C''$  is a translation of  $\triangle A'B'C'$ .
- 3)  $\triangle A''B''C''$  is a dilation in the origin of scale factor 2 of  $\triangle ABC$ .
- 4)  $\triangle A'B'C'$  is a translation of  $\triangle ABC$ .

3) In the diagram below,  $\triangle ABC \cong \triangle A''B''C''$ .



Which sequence of transformations maps  $\triangle ABC$  onto  $\triangle A''B''C''$ ?

- (1) a line reflection followed by a rotation
- (2) a rotation followed by a line reflection
- (3) a translation followed by a line reflection
- (4) a rotation followed by a translation

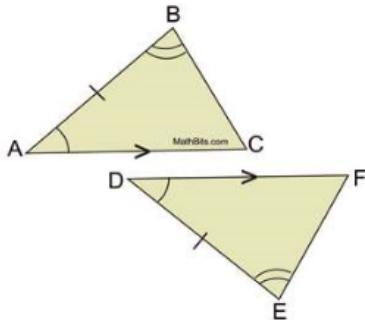


# Rigid Motion and Congruence Practice

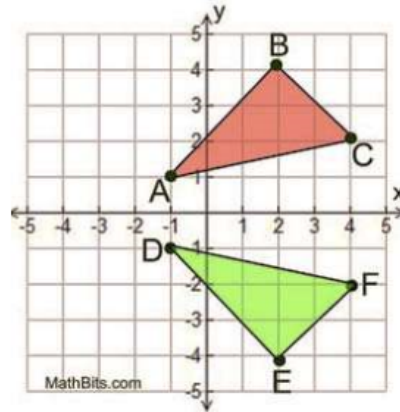
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Directions: Read carefully and examine the diagrams. Remember that rigid motions include reflections, translations, rotations or combinations of these transformations.

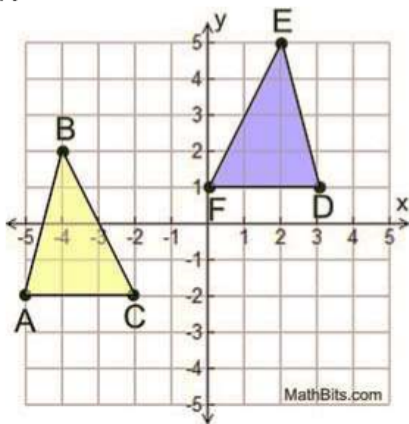
1. Which rigid motion(s) will verify that  $\triangle ABC$  is congruent to  $\triangle DEF$  as shown below?



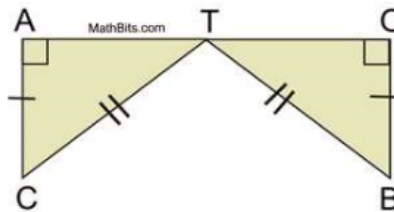
2. Which rigid motion will verify that  $\triangle ABC$  is congruent to  $\triangle DEF$  as shown below?



3. Which rigid motion(s) will verify that  $\triangle ABC$  is congruent to  $\triangle DEF$  as shown below?



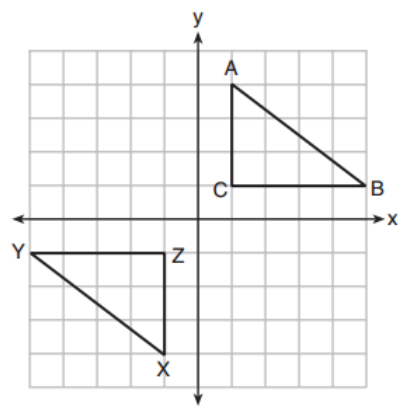
4. Given a straight segment from  $A$ , through  $T$ , to  $O$ . Which rigid motion(s) will verify that  $\triangle CAT$  is congruent to  $\triangle BOT$  as shown below?



S  
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S  
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Skill: Describing Transformations

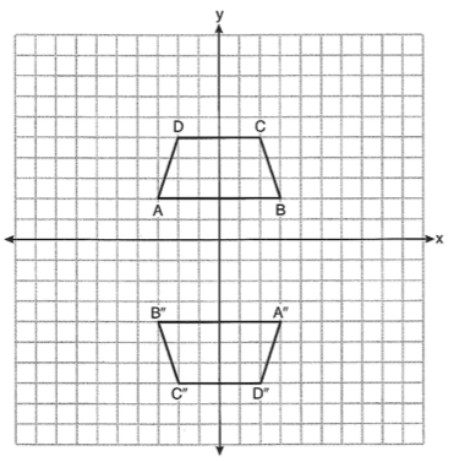
In the diagram below,  $\triangle ABC$  and  $\triangle XYZ$  are graphed.



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

Skill: Drawing Transformations

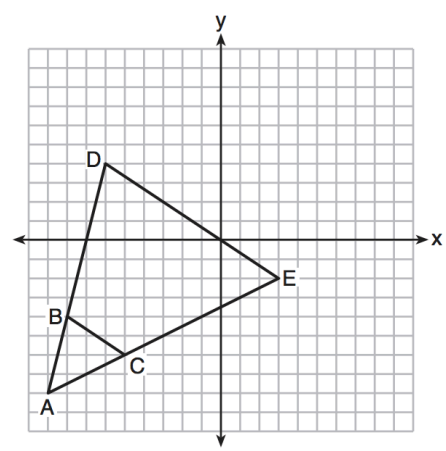
Quadrilaterals  $ABCD$  and  $A'B'C'D'$  are graphed on the set of axes below.



Describe a sequence of transformations that maps trapezoid  $ABCD$  onto trapezoid  $A'B'C'D'$ .

Skill: Drawing Transformations

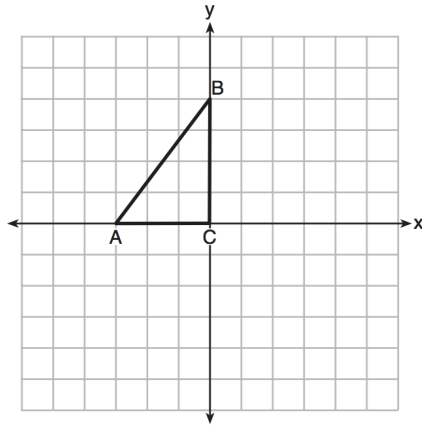
Triangle  $ABC$  and triangle  $ADE$  are graphed on the set of axes below.



Describe a transformation that maps triangle  $ABC$  onto triangle  $ADE$ .

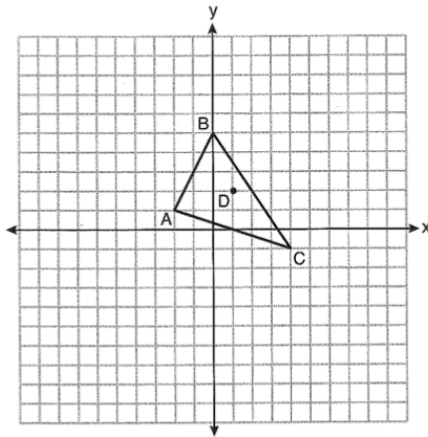
Skill: Drawing Transformations

Triangle  $ABC$  is graphed on the set of axes below. Graph and label  $\triangle A'B'C'$ , the image of  $\triangle ABC$  after a reflection over the line  $x = 1$ .



Skill: Drawing Transformations

8 Triangle  $ABC$  and point  $D(1,2)$  are graphed on the set of axes below.



Graph and label  $\triangle A'B'C'$ , the image of  $\triangle ABC$  after a dilation of scale factor 2 centered at point  $D$ .

Skill: Drawing Transformations

Given:  $\triangle ABC$  with coordinates  $A(1,2)$ ,  $B(0,5)$ , and  $C(5,4)$ .

- On the graph below, draw and label  $\triangle ABC$ .
- Graph and state the coordinates of  $\triangle A'B'C'$ , the image of  $\triangle ABC$  after the translation  $T_{-6,3}$ .
- Graph and state the coordinates of  $\triangle A''B''C''$ , the image of  $\triangle A'B'C'$  after a reflection in the  $x$ -axis.
- Graph and state the coordinates of  $\triangle A'''B'''C'''$ , the image of  $\triangle A''B''C''$  after a rotation of  $90^\circ$  counter clockwise around the origin

