Name: _____ 　　　　Date: _____
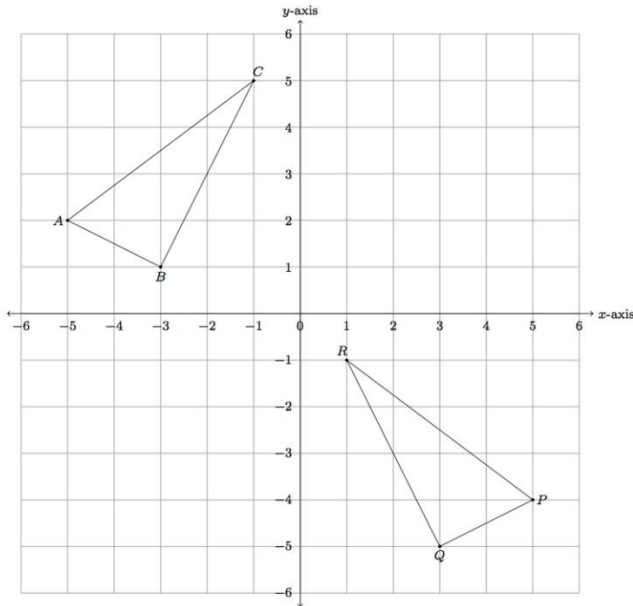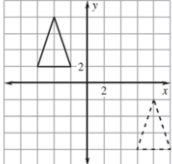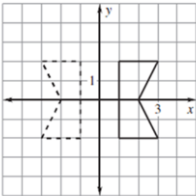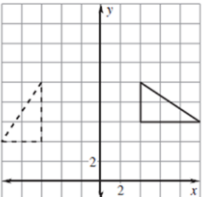
AIM: HOW DO WE IDENTIFY SEQUENCES OF RIGID MOTIONS <u>ON</u> THE COORDINATE PLANE?

Do Now: How does triangle ABC map onto triangle PQR?

* A <u>**sequence of rigid motions**</u> is when it takes <u>**more than one transformation**</u> to map the pre-image onto the image! *

WHAT DO WE NEED TO SAY WHEN DISCUSSING TRANSFORMATIONS?

TYPE	KEY WORD / KEY FACTS TO DISCUSS WHEN DESCRIBING	DIAGRAM
1. TRANSLATION		
2. REFLECTION		
3. ROTATION		

1. In the diagram below, $\triangle A'B'C'$ is a transformation of $\triangle ABC$, and $\triangle A''B''C''$ is a transformation of $\triangle A'B'C'$.

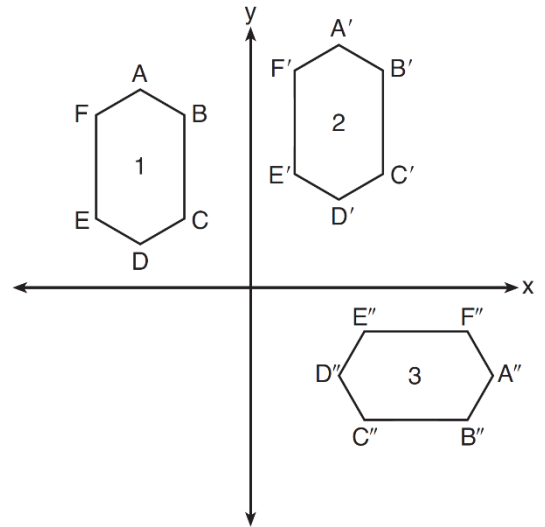   The composite transformation of $\triangle ABC$ to $\triangle A''B''C''$ is an example of a

    1) reflection followed by a rotation

    2) reflection followed by a translation

    3) translation followed by a rotation

    4) translation followed by a reflection
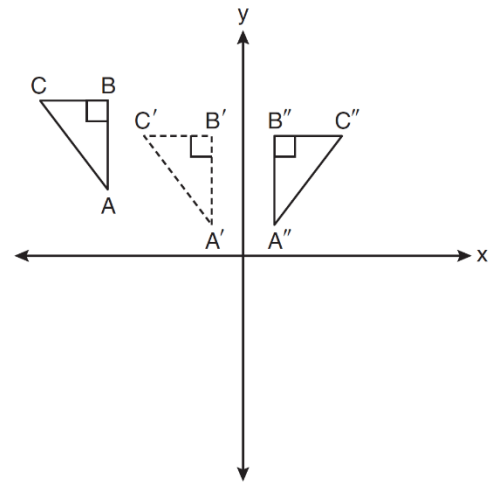
2. In the diagram below, congruent figures 1, 2, and 3 are drawn.

    Which sequence of transformations maps figure 1 onto figure 2 and then figure 2 onto figure 3?
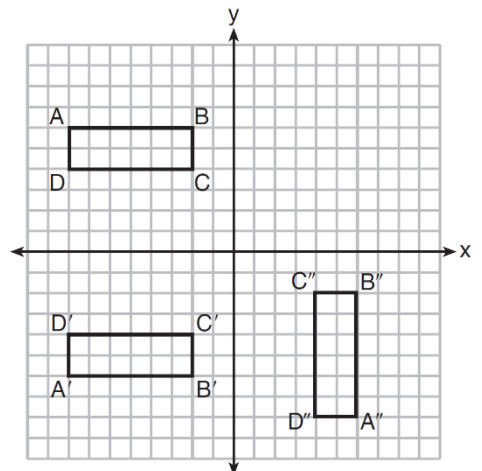
    1) a reflection followed by a translation

    2) a rotation followed by a translation

    3) a translation followed by a reflection

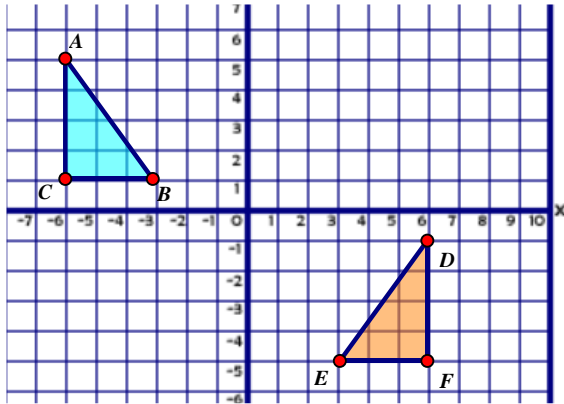   4) a translation followed by a rotation

3. A sequence of transformations maps rectangle $ABCD$ onto rectangle $A''B''C''D''$, as shown in the diagram below.

    Which sequence of transformations maps $ABCD$ onto $A'B'C'D'$ and then maps $A'B'C'D'$ onto $A''B''C''D''$?

    1) a reflection followed by a rotation

    2) a reflection followed by a translation

    3) a translation followed by a rotation
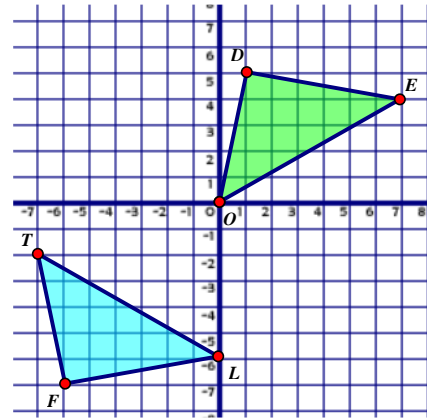
    4) a translation followed by a reflection

4. Name the transformation or sequence of transformations that maps one figure onto the other. Then, complete the congruence statement.
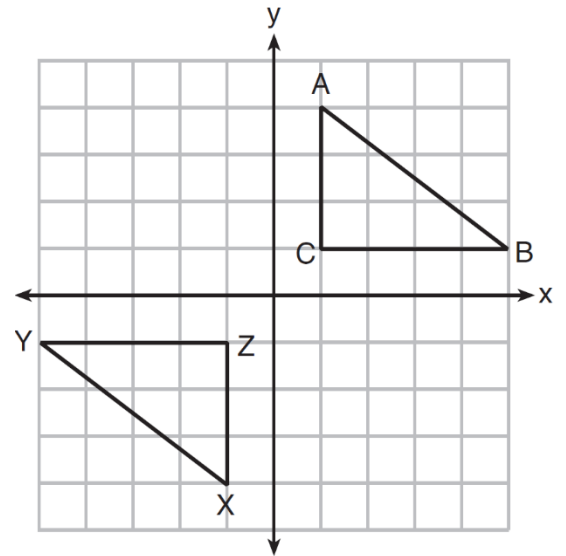

a) Given: △*ABC* is the pre-image

A reflection over the _____
followed by
A translation of _____

△ABC ≅ △_____

b) Given: △*FLT* is the pre-image

A reflection over the _____
followed by
A translation of _____

△FLT ≅ △_____

5. In the diagram below, △*ABC* and △*XYZ* are graphed.
   Describe the transformation that maps △*ABC* onto △*XYZ*.
   Use the properties of rigid motions to explain why △*ABC* ≅ △*XYZ*.

6. Quadrilaterals *BIKE* and *GOLF* are graphed on the set of axes below.

   Describe a sequence of transformations that maps quadrilateral *BIKE* onto quadrilateral *GOLF*.
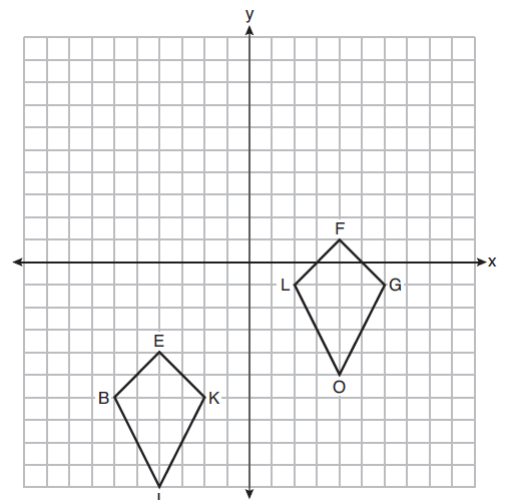
7. Quadrilateral *MATH* and its image *M"A"T"H"* are graphed on the set of axes below. Describe a sequence of transformations that maps quadrilateral *MATH* onto quadrilateral *M"A"T"H"*. Use the properties of rigid motion to explain your answer.
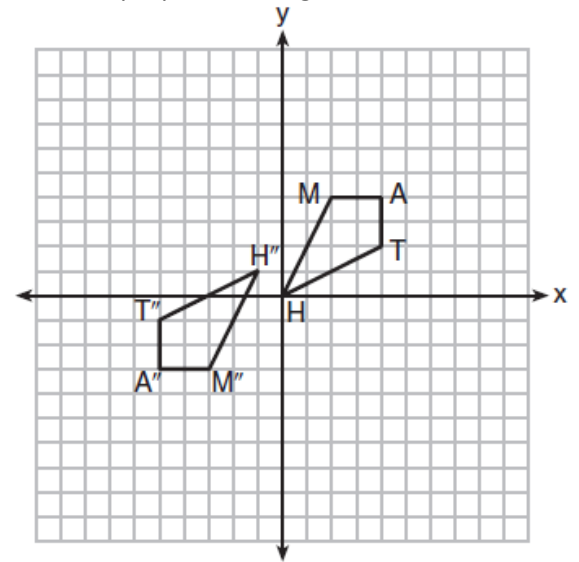
8. Triangle *ABC* and its image *XYZ* are graphed on the set of axes below. Precisely describe a sequence of transformations that maps Triangle *ABC* onto *XYZ*.
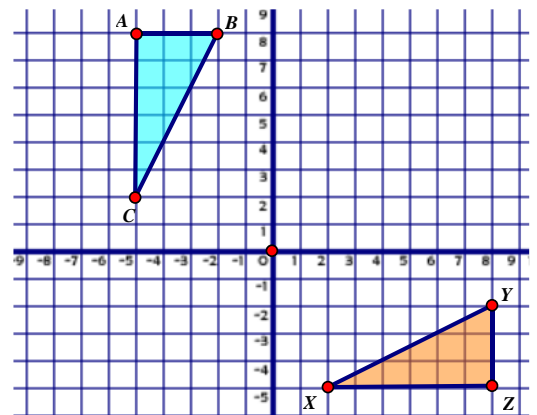
**UNIT 4**   **LESSON 9 HOMEWORK**

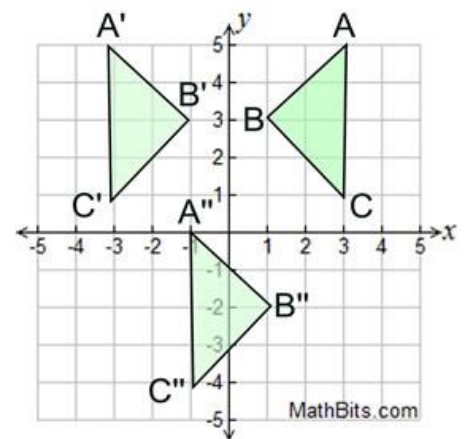1. Triangle *ABC* and triangle *DEF* are graphed on the set of axes below.

Which sequence of transformations maps triangle *ABC* onto triangle *DEF*?

1) a reflection over the *x*-axis followed by a
    reflection over the *y*-axis

2) a 180° rotation about the origin followed by a
    reflection over the line $y = x$

3) a 90° clockwise rotation about the origin
    followed by a reflection over the *y*-axis

4) a translation 8 units to the right and 1 unit up
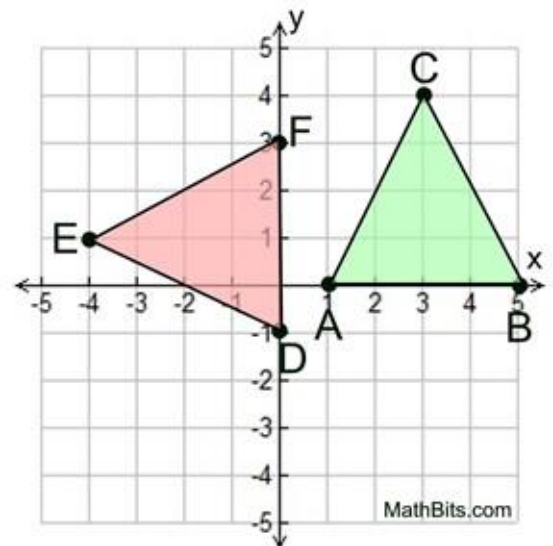   followed by a 90° counterclockwise rotation
    about the origin
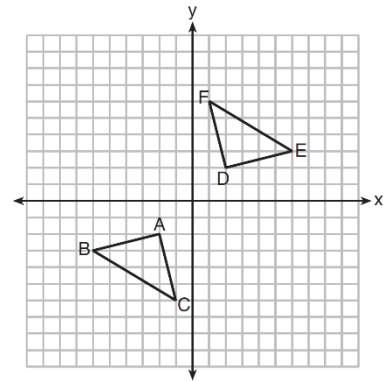
2. Which of the following descriptions pertaining to the graph below is true?

    (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. Describe a sequence of transformations that maps ∆*ABC* to ∆*DFE* as shown at the below.

4. Triangle *ABC* and its image *A'B'C'* are graphed on the set of axes below. Precisely describe a sequence of transformations that maps Triangle *ABC* onto *A'B'C'*.
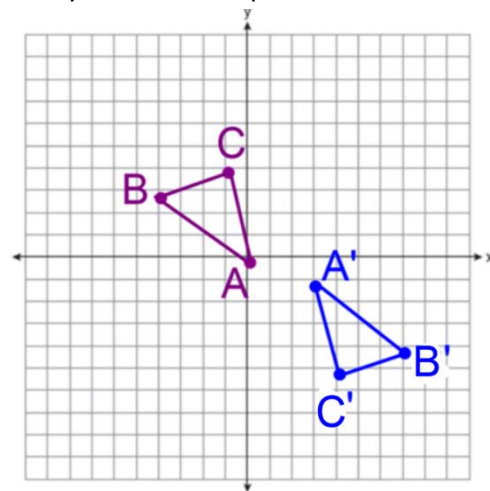
5. The graph to the right shows $\triangle ABC$ and its image, $\triangle A"B"C"$.

   Describe a sequence of rigid motions which would

   map $\triangle ABC$ onto $\triangle A"B"C"$.