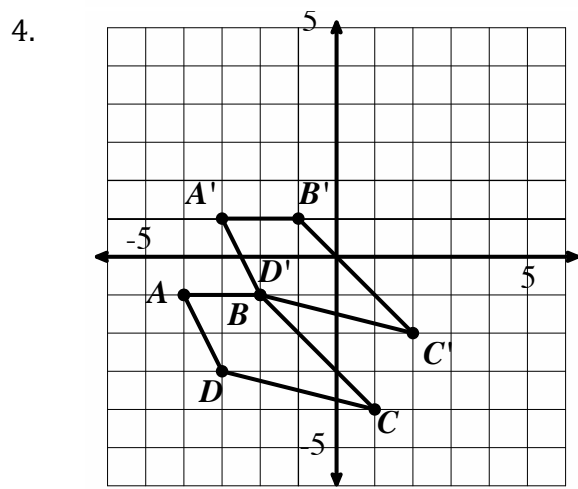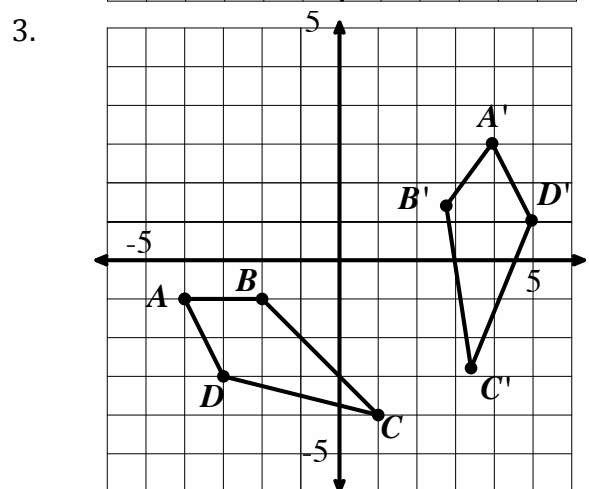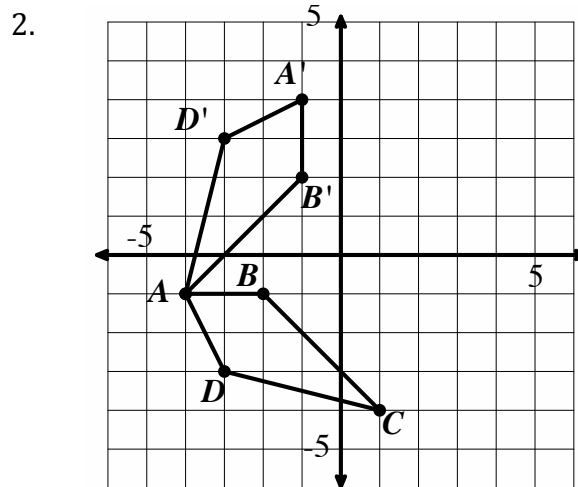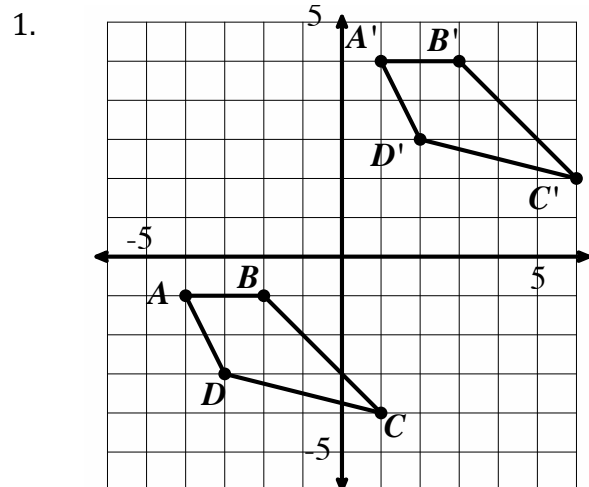# Mod 6 Transformations Review

Matching I – Match each image with the transformation that has taken place. (G.CO.4)

1.

2.

3.

4.

(A) Reflect across *y = -2x + 1*   (B) $f(x,y) \rightarrow (x+5, y+6)$

(C) Rotate 90° Clockwise around the   (D) $f(x,y) \rightarrow (x+1, y+2)$
point (0, 0)

5. What transformations preserve distance and angles between the image and pre-image?

6. What transformations DO NOT preserve distance and angles between the image and pre-image?

7. Based off questions 4-5, which of the following transformations **will** preserve distances and angles between pre-image and image? (G.CO.2)
(A) $f(x, y) \rightarrow (4x, y-4)$ (B) $f(x, y) \rightarrow (-3x, y)$
(C) $f(x, y) \rightarrow (2-x, 2y)$ (D) $f(x, y) \rightarrow (x + 2, y - 2)$

8. Which of the following transformations **will not** preserve distances and angles between pre-image and image? (G.CO.2)

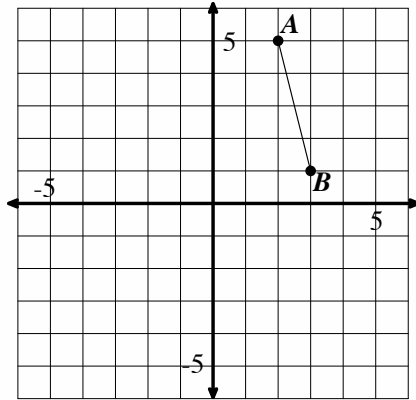(A) $f(x, y) \rightarrow (x+3, y-2)$ (B) $f(x, y) \rightarrow (-x, y)$

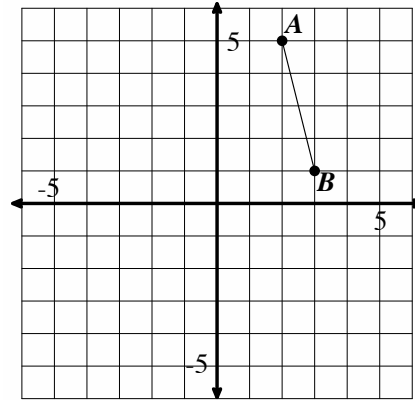(C) $f(x, y) \rightarrow (3x, 3y)$ (D) $f(x, y) \rightarrow (x, y+6)$

Perform the requested transformation. *If you transform point A, make sure you label the transformed point as A'.* (G.CO.5)
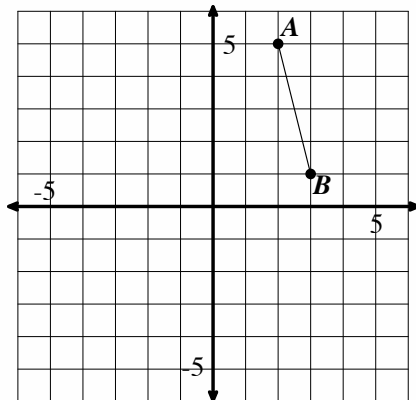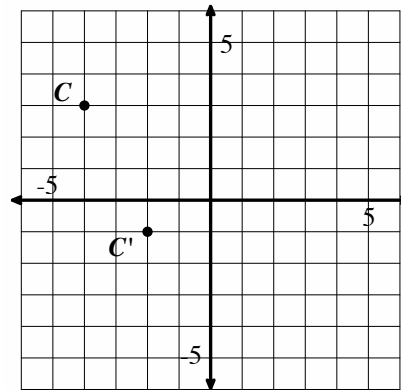
9.

$f(x,y) \rightarrow (x-4, y-3)$

10.

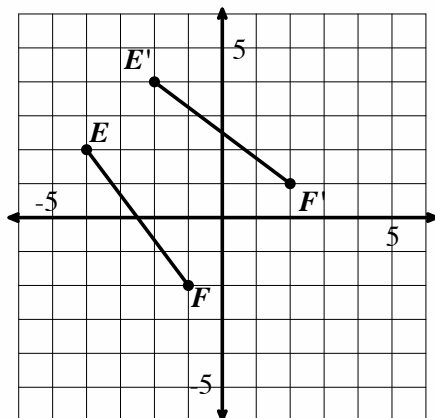$f(x,y) \rightarrow (x-5, y+2)$

11.

Rotate the line segment AB 90° counter-clockwise around the point (1, 1)
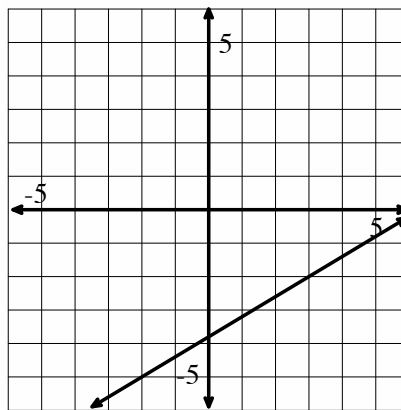
12.

Clearly draw the line of reflection on the graph above. Write the equation of the line.

13.

Clearly draw the line of reflection on the graph above. Write the equation of the line.

14.

Graph a perpendicular line to the one shown above. Write the equation of both lines.

15. What are the defining features of a mathematical *reflection*? Explain what is necessary for a transformation to be precisely a reflection **and** what you know about the pre-image and image.

16. What are the defining features of a mathematical *rotation*? Explain what is necessary for a transformation to be precisely a rotation **and** what you know about the pre-image and image.

17. What are the defining features of a mathematical *translation*? Explain what is necessary for a transformation to be precisely a translation **and** what you know about the pre-image and image.

18. How are transformations like functions? (G.CO.2)

Ready, Set, Go!

Ready

Topic: Defining geometric shapes and components

For each of the geometric words below write a definition of the object that addresses the essential elements. Also, list necessary attributes and characteristics.
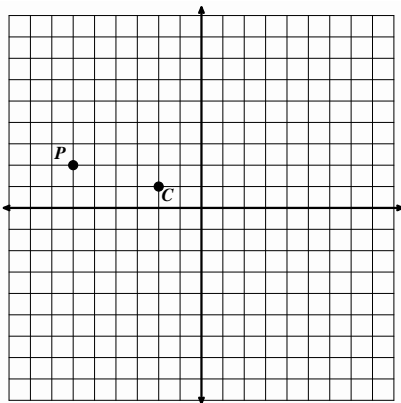
1. Quadrilateral:

2. Parallelogram:

3. Rectangle:

4. Square:

5. Rhombus:

6. Trapezoid:

Set

Topic: Reflections and Rotations, composing reflections to create a rotation

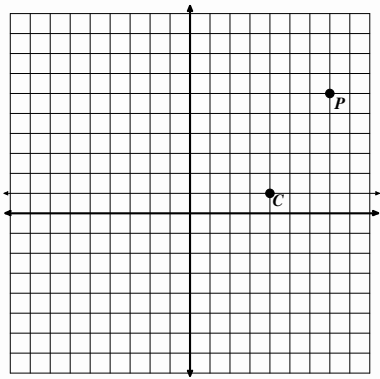**Perform the indicated rotations.**

7.

Use the center of rotation point **C** and rotate point **P** clockwise around it 90^0. Label the image **P'**.

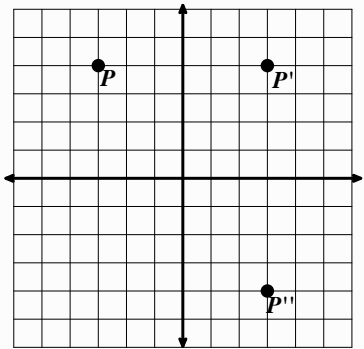With point **C** as a center of rotation also rotate point **P** 180^0. Label this image **P''**.

8.

Use the center of rotation point **C** and rotate point **P** clockwise around it 90⁰. Label the image **P'**.

With point **C** as a center of rotation also rotate point **P** 180⁰. Label this image **P''**.

9.

a. What is the equation for the line for reflection that reflects point **P** onto **P'**?

b. What is the equation for the line of reflections that reflects point **P'** onto **P''** ?

c. Could **P''** also be considered a rotation of point **P**? If so what is the center of rotation and how many degrees was point **P** rotated?
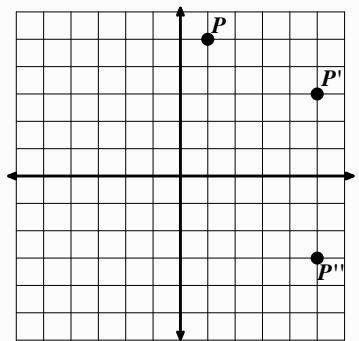
10.

a. What is the equation for the line for reflection that reflects point **P** onto **P'**?

b. What is the equation for the line of reflections that reflects point **P'** onto **P''** ?

c. Could **P''** also be considered a rotation of point **P**? If so what is the center of rotation and how many degrees was point **P** rotated?
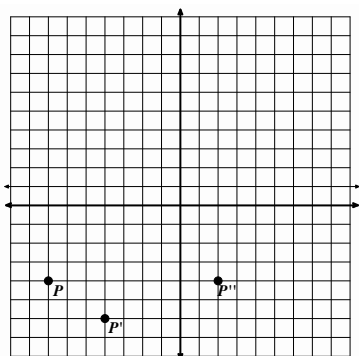
11.

a. What is the equation for the line for reflection that reflects point **P** onto **P'**?

b. What is the equation for the line of reflections that reflects point **P'** onto **P''** ?

c. Could **P''** also be considered a rotation of point **P**? If so what is the center of rotation and how many degrees was point **P** rotated?

Go

Topic: Rotations about the origin

Plot the given coordinate and then perform the indicated rotation in a clockwise direction around the origin, the point (0 , 0), and plot the image created. State the coordinates of the image.

12. Point **A** (4, 2) rotate 180^0
    Coordinates for Point **A'** (___ , ___)

13. Point **B** (-5, -3) rotate 90^0 clockwise
    Coordinates for Point **B'** (___ , ___)

14. Point **C** (-7, 3) rotate 180^0
    Coordinates for Point **C'** (___ , ___)

15. Point **D** (1, -6) rotate 90^0 clockwise
    Coordinates for Point **D'** (___ , ___)