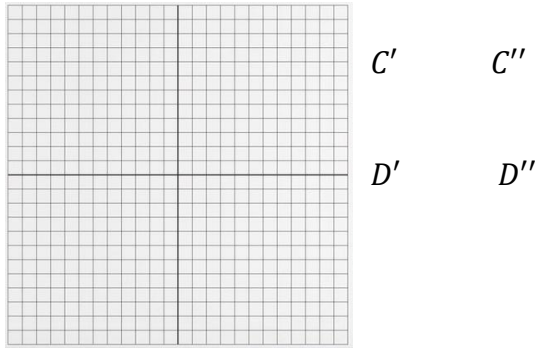


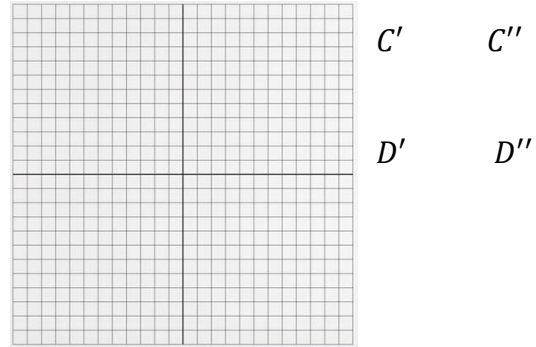
LEVEL: EMERGING

Directions: The endpoints of \overline{CD} are $C(2, -5)$ and $D(4, 0)$. Graph \overline{CD} . Give the coordinate of $C'D'$ and $C''D''$. Then graph image of \overline{CD} after the composition of transformations.

- 1) Translation: $(x, y) \rightarrow (x + 2, y - 1)$
 Reflection in the y-axis



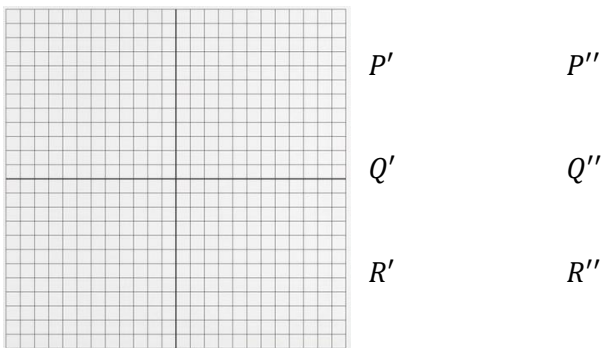
- 2) Translation: $(x, y) \rightarrow (x - 3, y + 4)$
 Reflection in the y=x



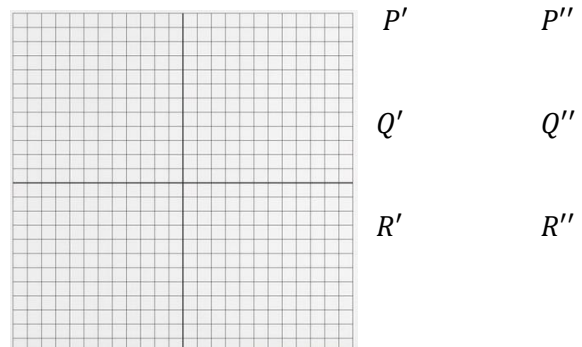
LEVEL: PROFICIENT

Directions: The vertices of $\triangle PQR$ are $P(2, 4)$, $Q(6, 0)$, and $R(7, 2)$. Give the coordinates of $\triangle P'Q'R'$ and $\triangle P''Q''R''$. Graph the image of $\triangle PQR$ after a composition of transformations in the order they are listed.

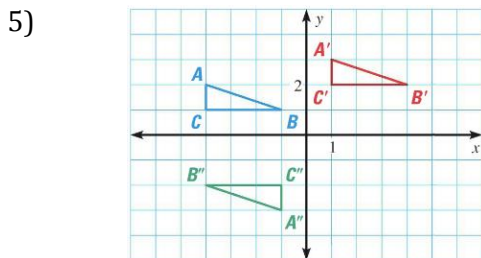
- 3) Translation: $(x, y) \rightarrow (x + 2, y - 5)$
 Reflection in the y-axis



- 4) Reflection over $y=x$
 Rotation 90° clockwise about the origin

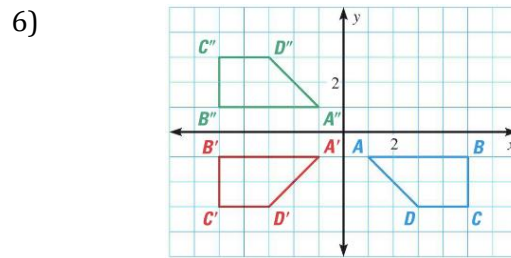


Directions: Describe the composition of transformations. Give the exact translation, reflection or rotation.



Transformation 1:

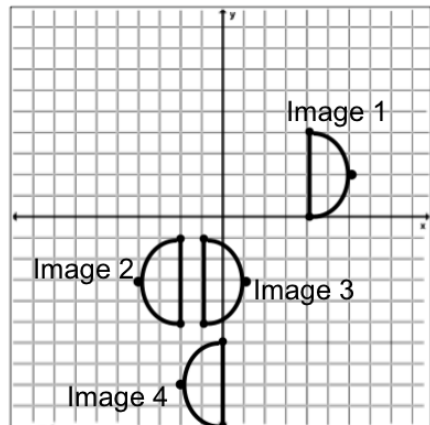
Transformation 2:



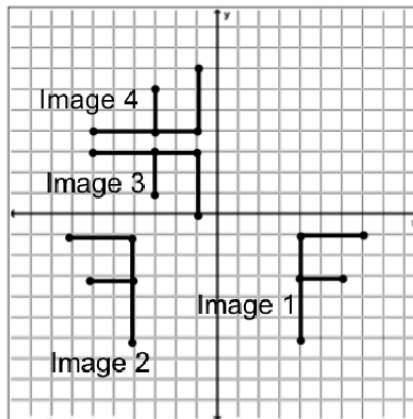
Transformation 1:

Transformation 2:

7) Which of the following Images represents the glide reflection -5 units vertically and then reflected over $x=1$ of Image 1?



8) Which of the following Images represents the composition of transformations of 90° counterclockwise about the origin, followed by a reflection across the y axis?



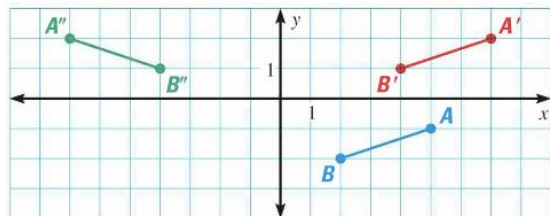
9) Can a glide reflection shift a point horizontally and reflect it across the y -axis? Explain?

10) In glide transformations, does gliding then reflecting, produce the same result as reflecting and then gliding? Explain.

11) Is a glide reflection an isometry? Explain?

LEVEL: MASTERY

12) **ERROR ANALYSIS:** A student described the translation of \overline{AB} to $\overline{A'B'}$ followed by the reflection of $\overline{A'B'}$ to $\overline{A''B''}$ in the y -axis as a glide reflection. Describe and correct the student's error.



Describe the error:

Correct Work:

13) Line segment \overline{AB} has the coordinates of $A(-3,2)$ and $B(-4,6)$. The line segment is translated up 2 units and right 1 unit. Then the line segment is reflected over the x -axis Find the coordinates of B'' . Then add the coordinates.

x-coordinate: _____ y-coordinate: _____

sum: _____

14) Line segment \overline{AB} has the coordinates of $A(4,6)$ and $B(2,0)$. The line segment is translated down 4 units and left 3 units. Then the line segment is reflected over the y -axis Find the coordinates of A'' . Then add the coordinates.

x-coordinate: _____ y-coordinate: _____

sum: _____