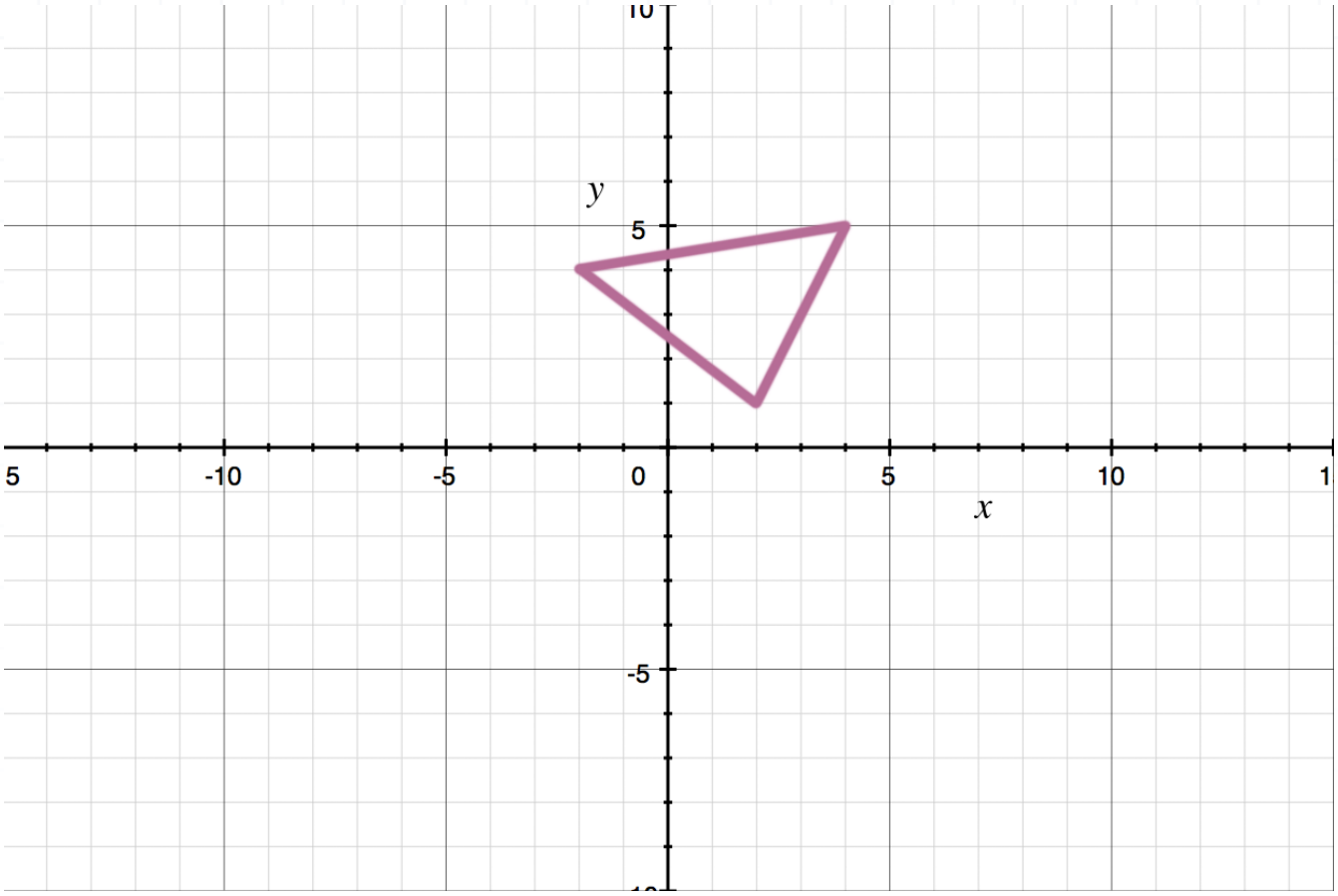
Topic: Reflecting figures in coordinate space

Question: If the triangle is reflected in the x-axis, what is the lowest point in the image?



Answer choices:

A $(4, -5)$

B $(2,1)$

C $(2, -1)$

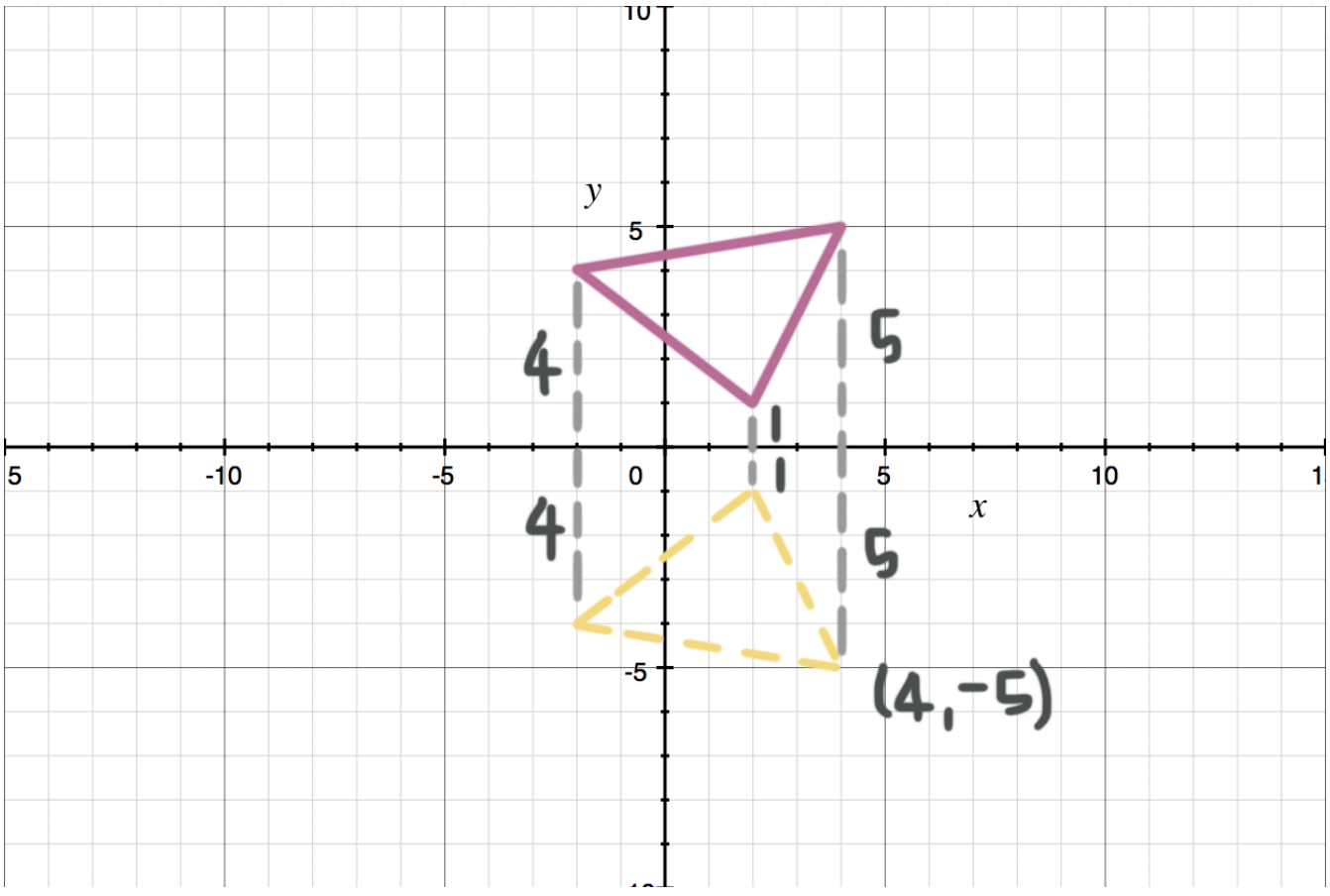
D $(-2, -4)$

Solution: A

The coordinates of the vertices of the triangle are $(-2,4)$, $(2,1)$, and $(4,5)$.

Since the triangle is being reflected across the x-axis, the lowest point in the image (the point with the least y-coordinate) will be the one that corresponds to the highest point in the pre-image (the point with the greatest y-coordinate).

The highest point in the pre-image is $(4,5)$, so the lowest point in the image is $(4, -5)$.

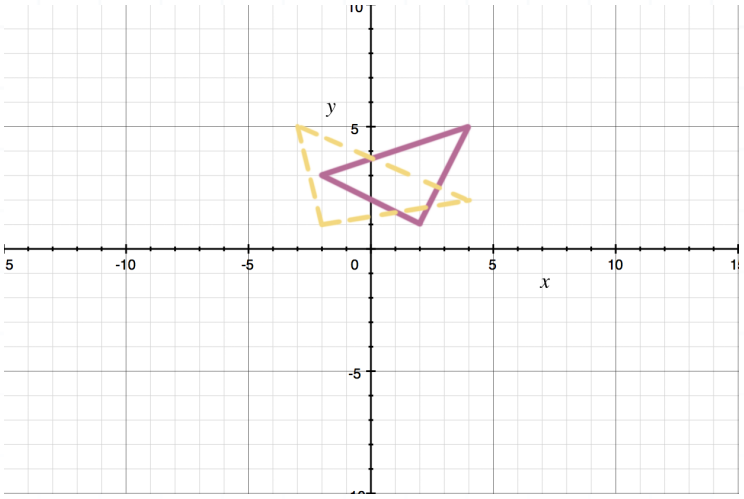


Topic: Reflecting figures in coordinate space

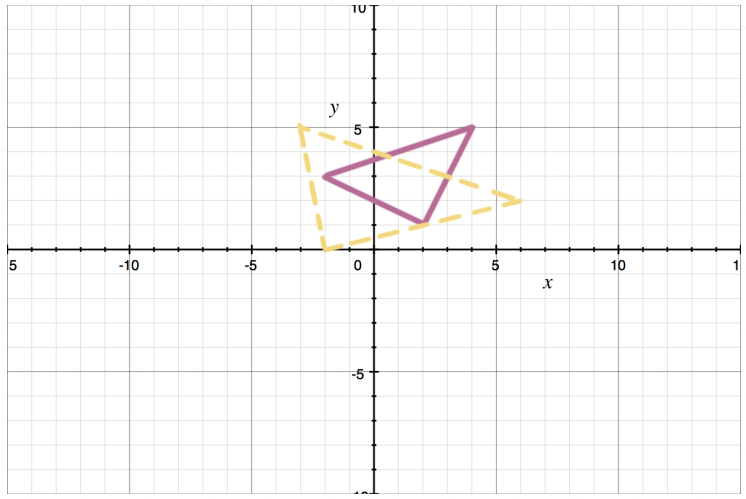
Question: The triangle is reflected in the y-axis. Which sketch correctly shows the reflection?

Answer choices:

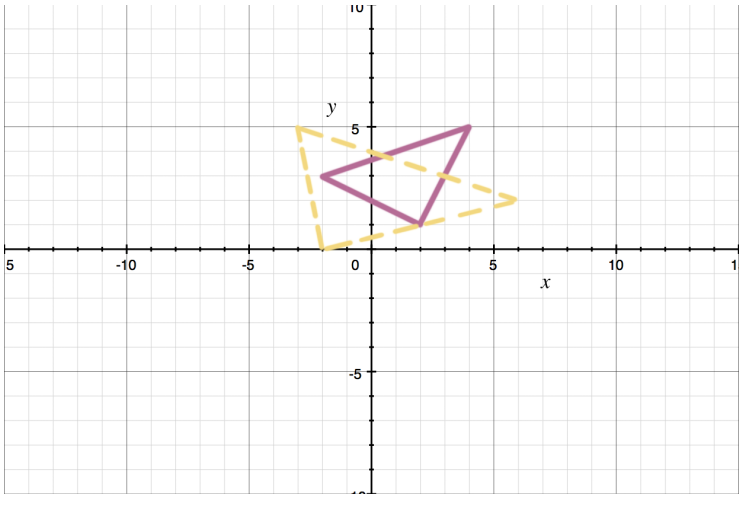
A



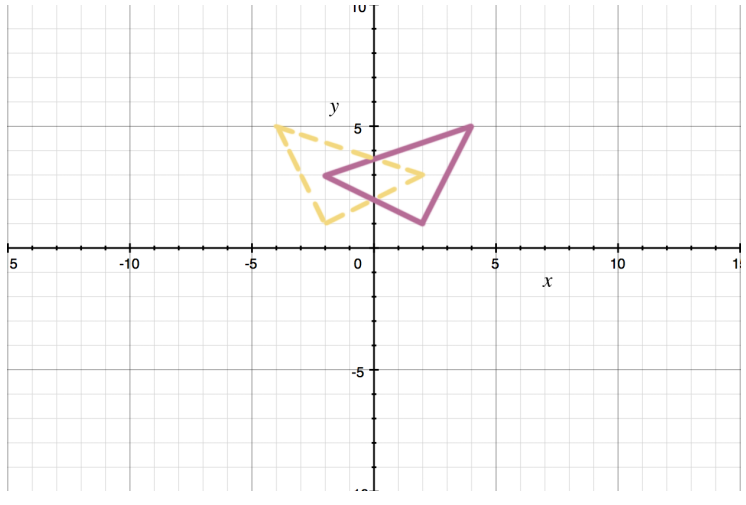
B



C

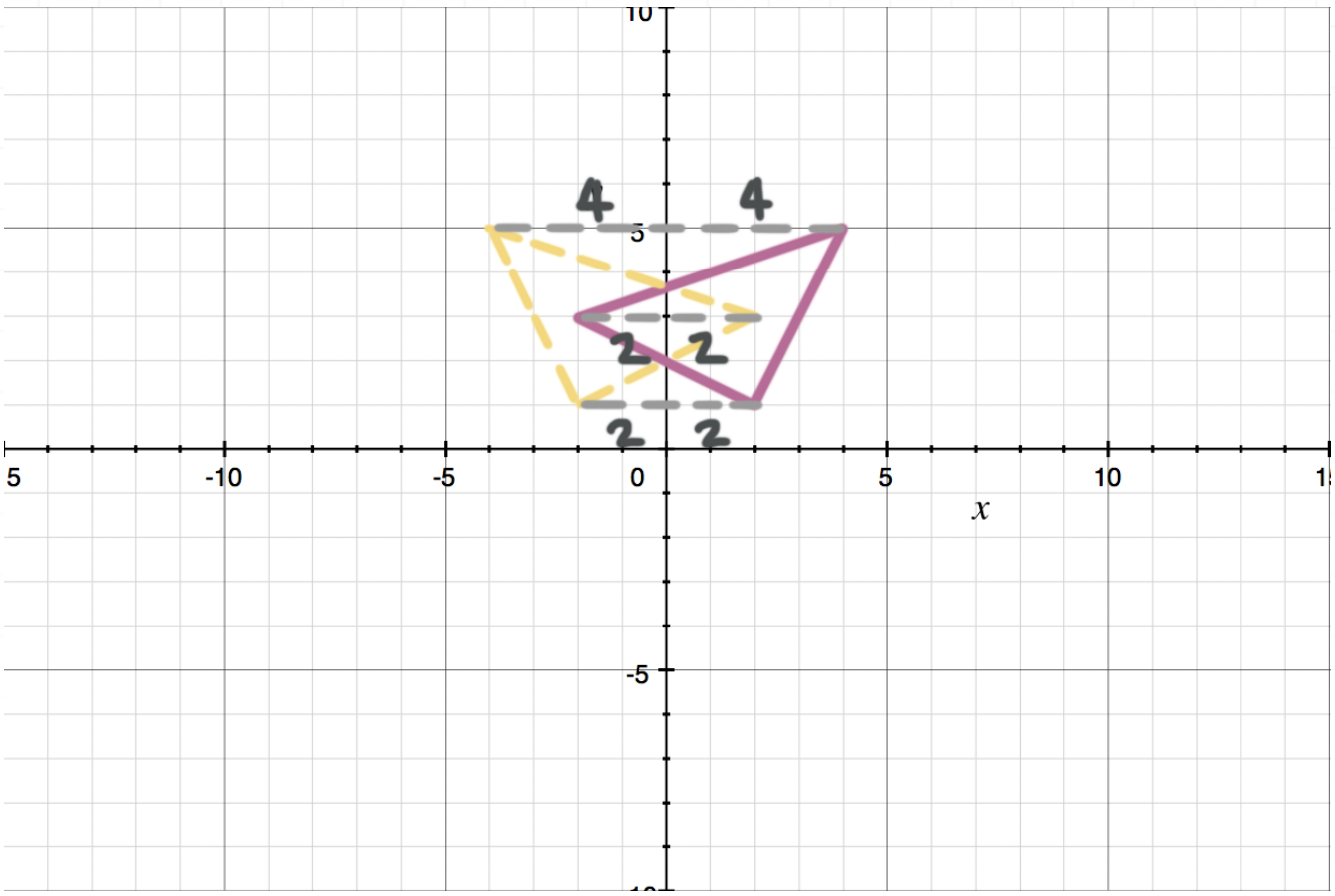


D



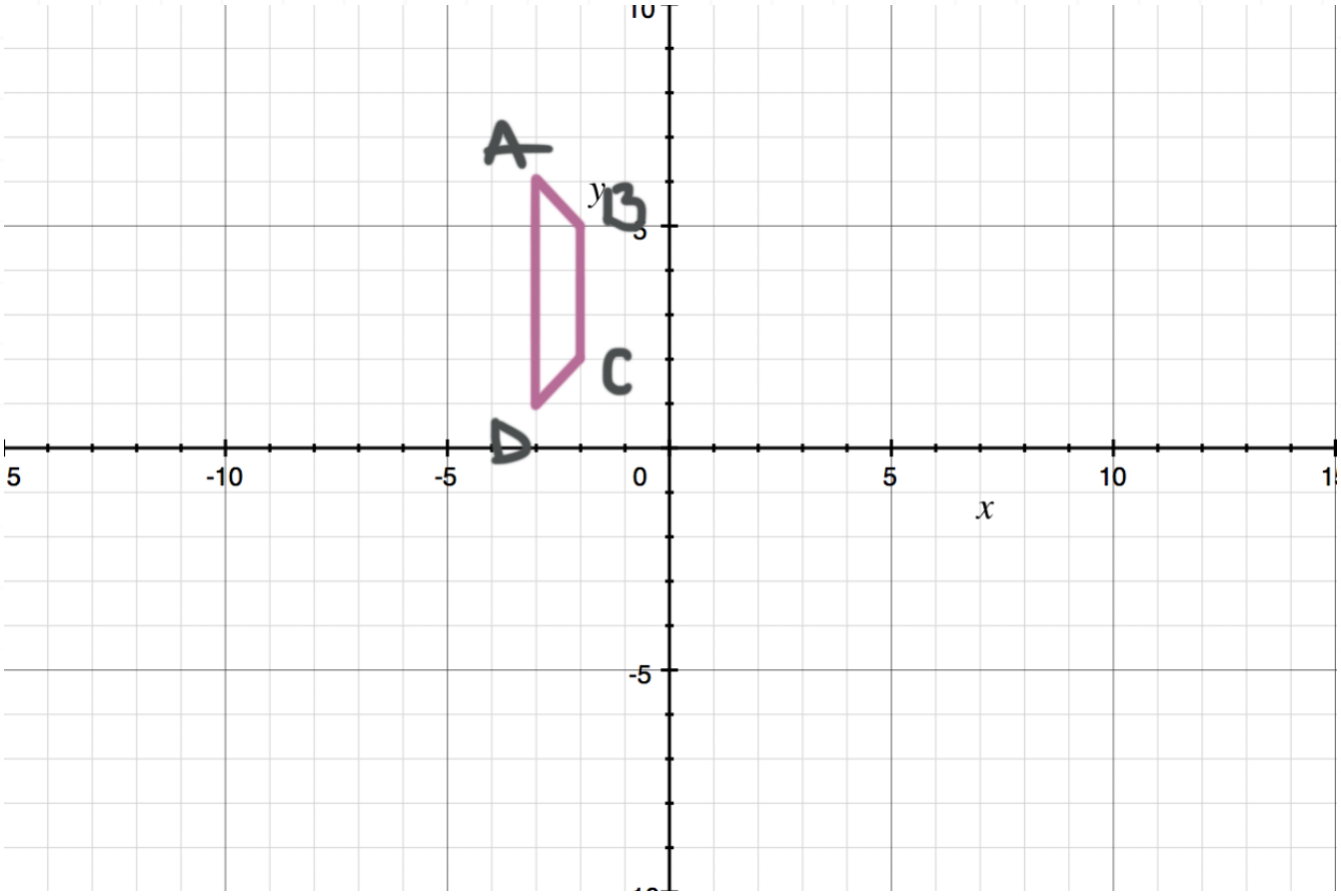
Solution: D

In figure D, each vertex of the triangle in the image and the corresponding vertex in the pre-image have the same y-coordinate and are equidistant from the y-axis.



Topic: Reflecting figures in coordinate space

Question: If the trapezoid $ABCD$ is reflected in the line $x = 2$, what is the point D' in the image that corresponds to point D in the pre-image?



Answer choices:

A $(3,1)$

B $(2,1)$

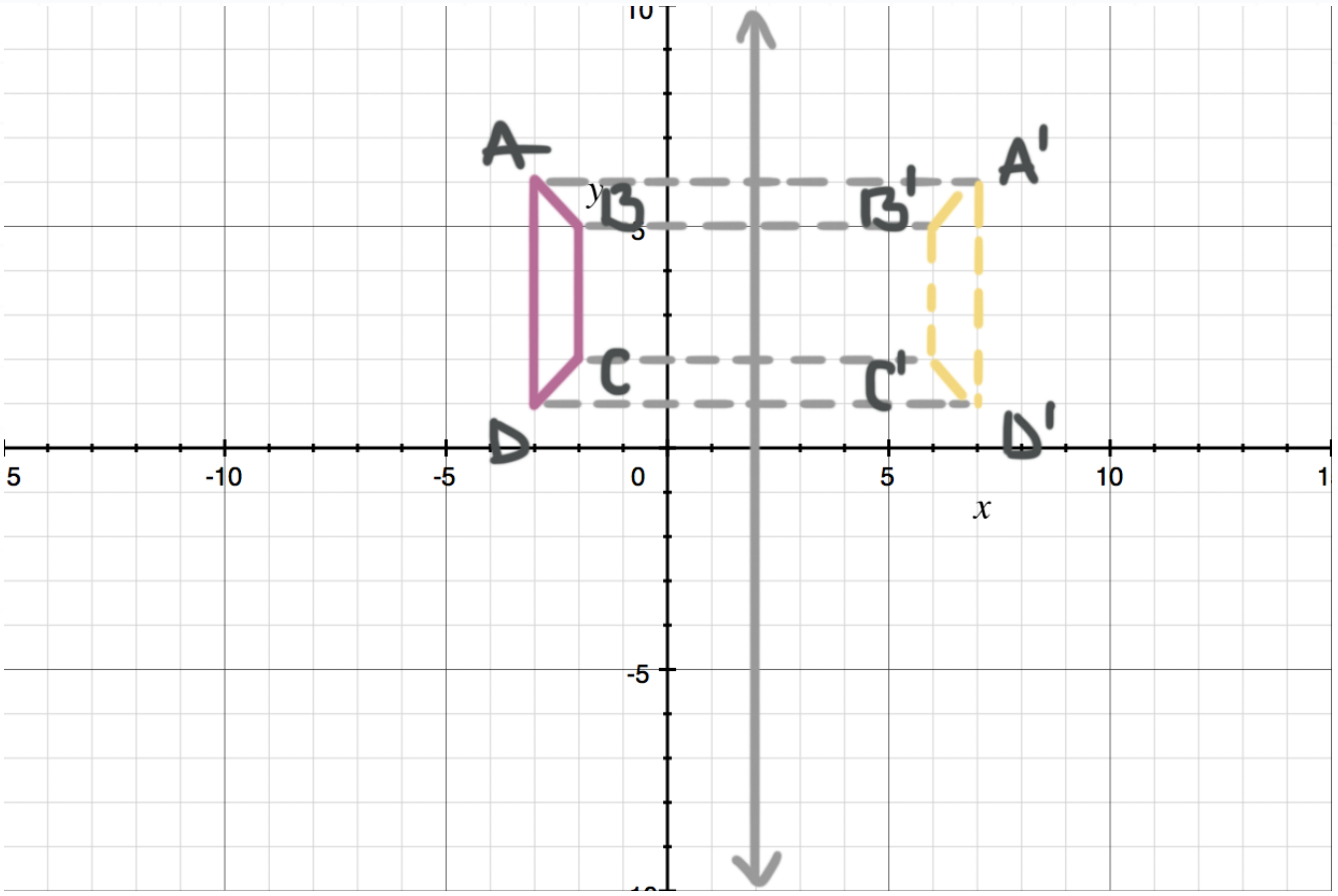
C $(7,1)$

D $(6,1)$

Solution: C

The coordinates of point D are $(-3,1)$, so the distance from D to the line $x = 2$ is $2 - (-3) = 5$.

Since D is 5 units to the left of the line $x = 2$, D' is 5 units to the right of that line. Therefore, the x-coordinate of D' is $2 + 5 = 7$, and the y-coordinate of D' is equal to that of D.



That gives $(7,1)$ for the location of D'.