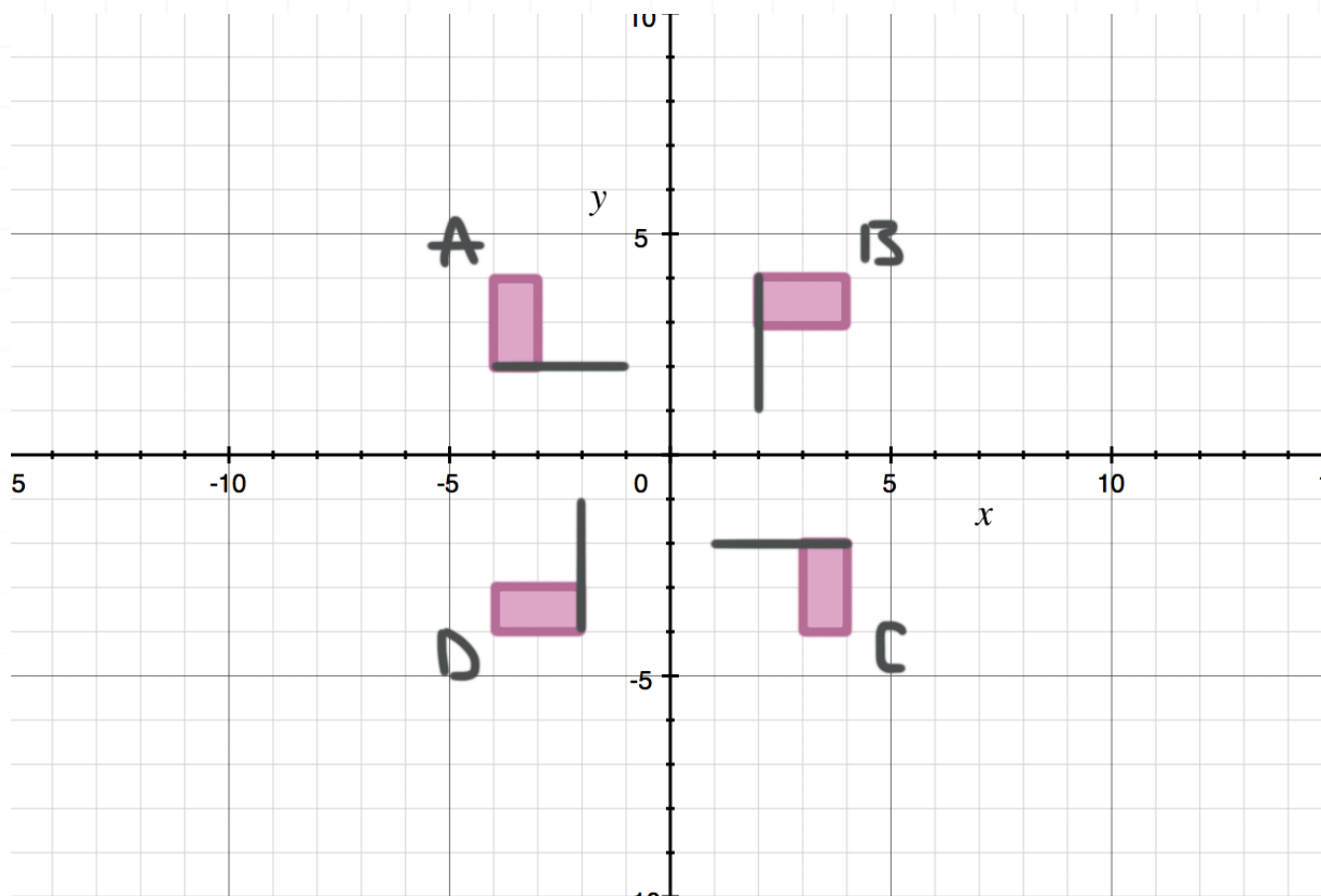**Topic**: Rotating figures in coordinate space

Question: Suppose one of the flags A, B, or C is rotated around (0,0) to position D. Which statement could not describe this rotation?

Answer choices:

A A is rotated $90°$ counterclockwise.

B B is rotated $90°$ clockwise.

C B is rotated $180°$ clockwise.

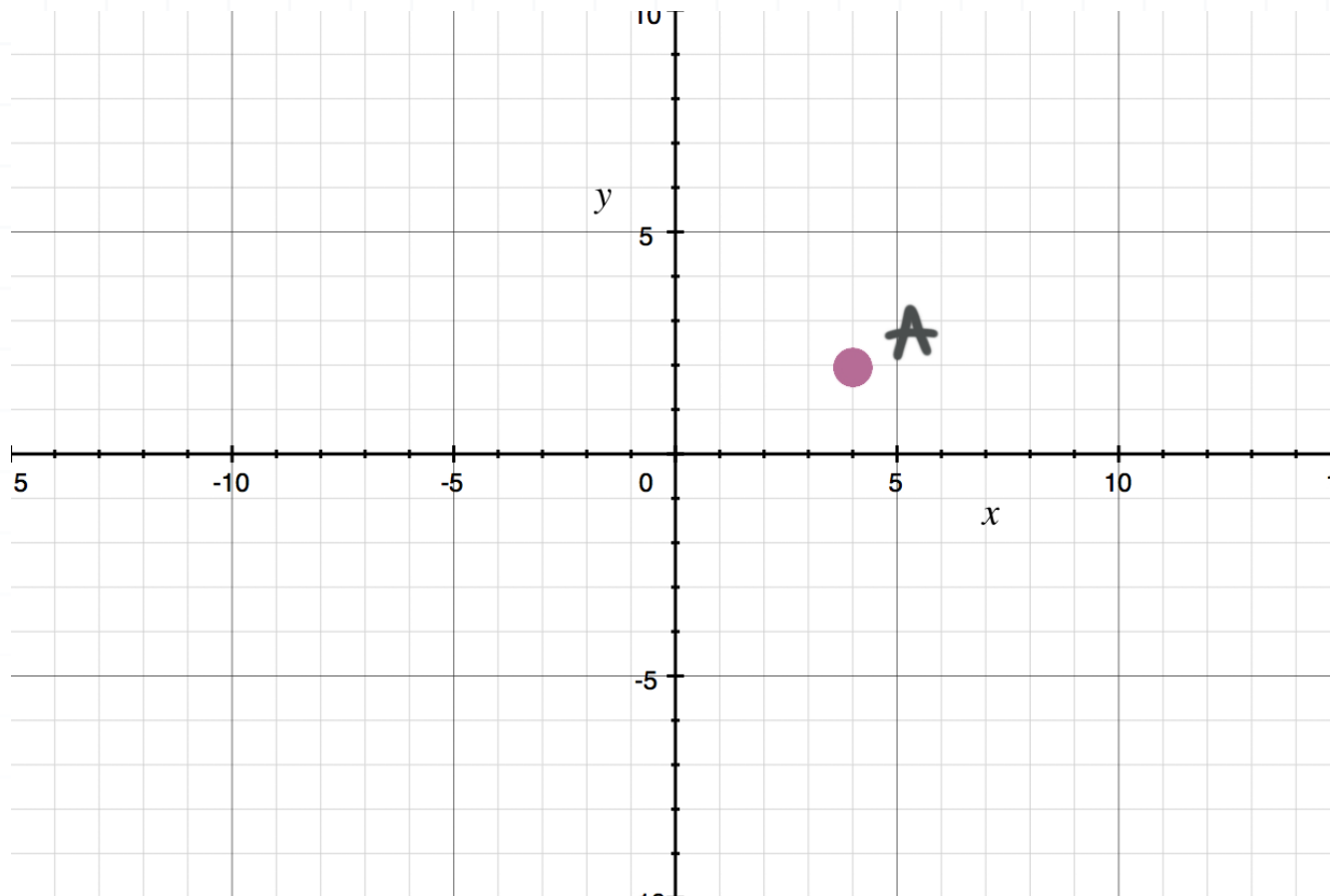D C is rotated $270°$ counterclockwise.

Solution: B

Answer choice B, "B is rotated $90°$ clockwise,", would move flag B to position C, not to position D, so the statement given in answer choice B would not work.

Topic: Rotating figures in coordinate space

Question: In a $90°$ clockwise rotation around $(0,0)$, to what point A' will point A be moved?
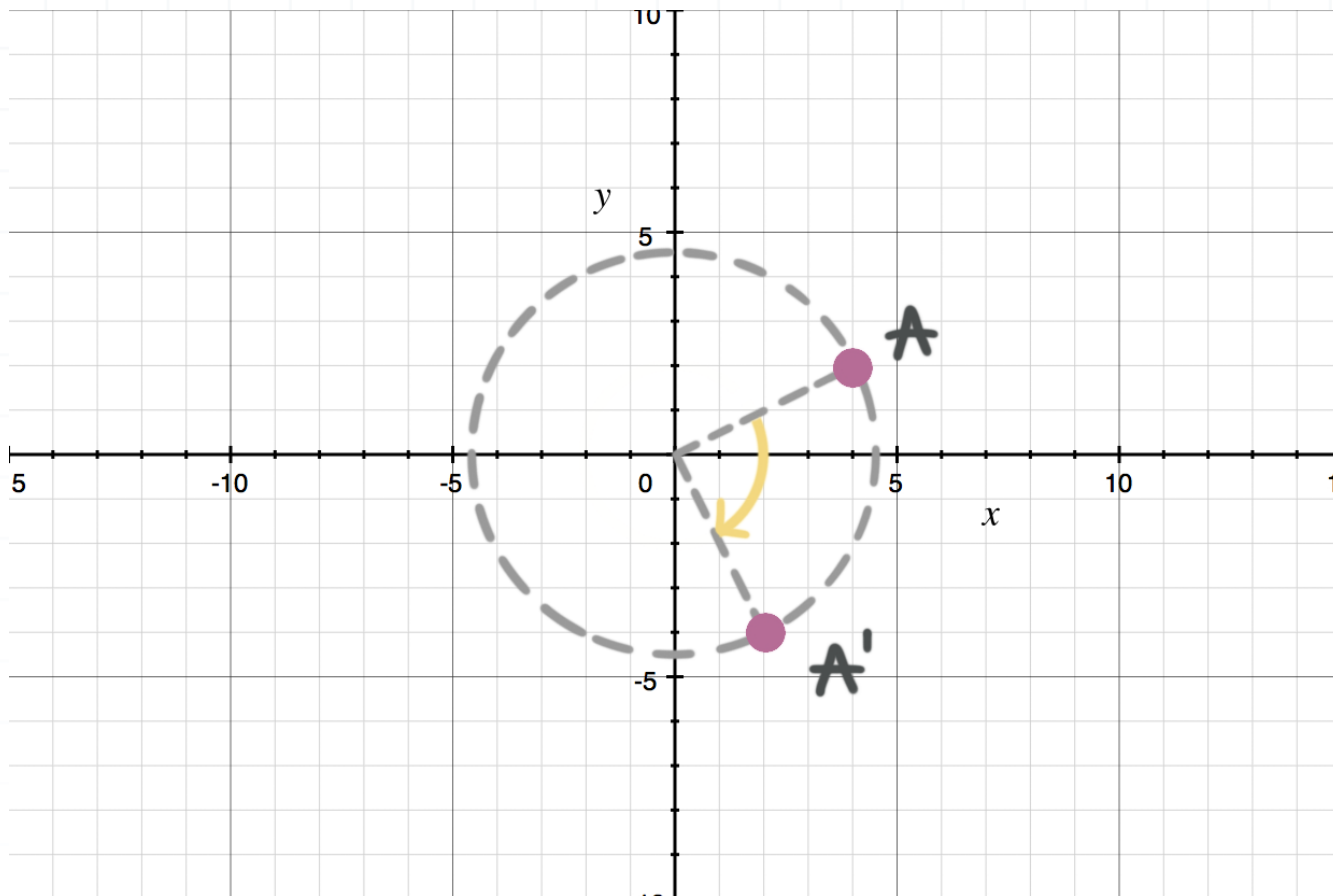

Answer choices:

A $(-2,4)$

B $(-4,2)$

C $(-2,-4)$

D $(2,-4)$

Solution: D

The figure shows what happens to point A in a $90°$ clockwise rotation about the origin. It's moved to point $A' = (2, -4)$.

Topic: Rotating figures in coordinate space

Question: Which rotation describes a point (h, k) that's moved to the point $(-h, -k)$ in a rotation around $(0,0)$?

Answer choices:

A   Clockwise $180°$

B   Counterclockwise $90°$

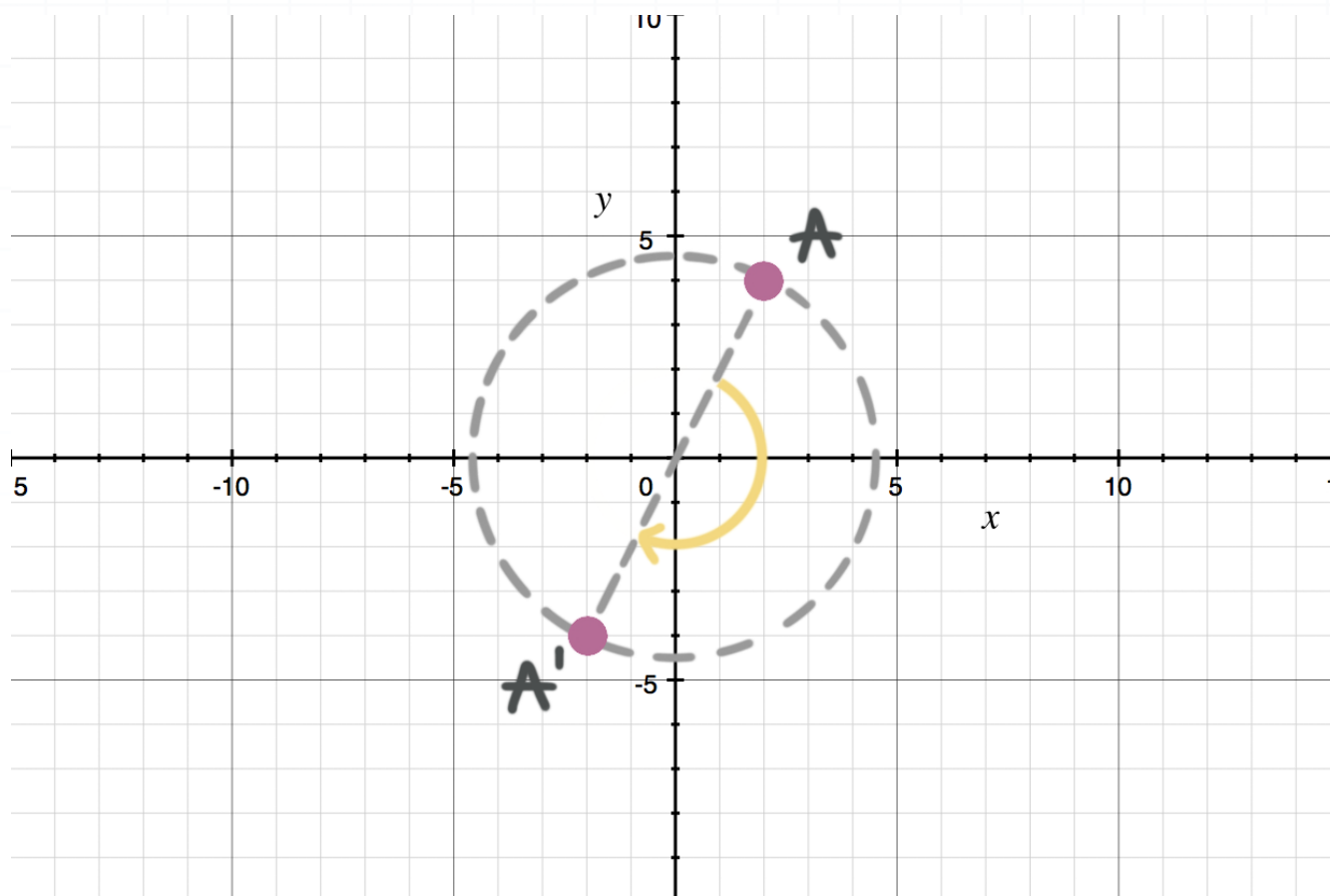C   Counterclockwise $270°$

D   Clockwise $270°$

Solution: A

The easiest way to solve this problem is to use a numerical example.

Let $(h, k) = (2, 4)$, plot this point, and label it A. Now $(-h, -k) = (-2, -4)$. Plot and label it A'.

It's pretty clear that A' is on the line that passes through A and $(0,0)$, so A' is exactly "halfway around the circle from A." In other words, we see a clockwise rotation of $180°$.

Answer choice A works. Note: It would have been just as valid to say a counterclockwise rotation of $180°$.