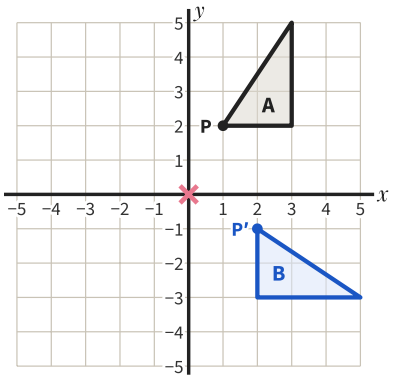
# Rotating shapes

ANSWERS

**1**

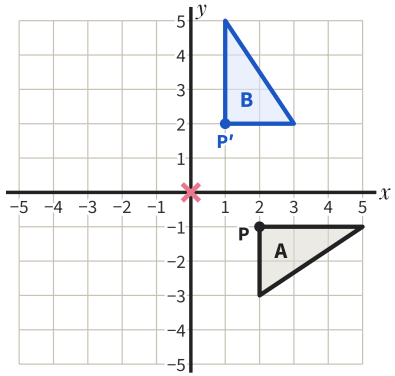
Rotate A 90° clockwise about (0, 0).
The cross shows where P lands.




P′ (2, −1)

**2**

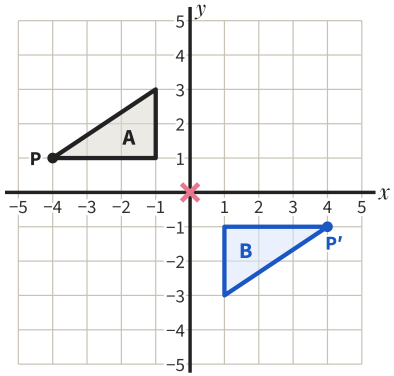
Rotate A 90° anticlockwise about (0, 0).




P′ (1, 2)

**3**

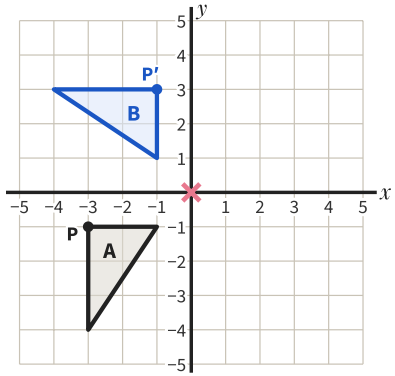
Rotate A 180° about (0, 0).




P′ (4, −1)

**4**

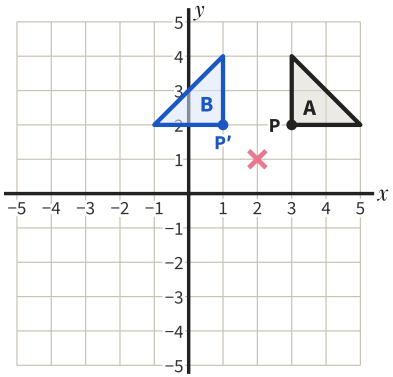
Rotate A 90° clockwise about (0, 0).




P′ (−1, 3)

**5**

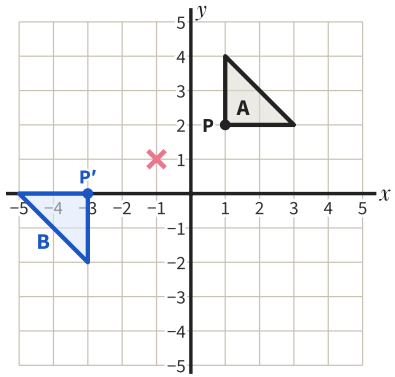
Rotate A 90° anticlockwise about (2, 1).




P′ (1, 2)

**6**

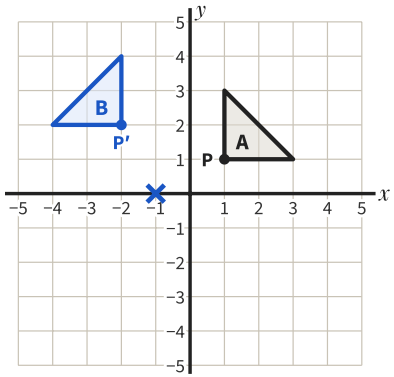
Rotate A 180° about (−1, 1).




P′ (−3, 0)

**7**

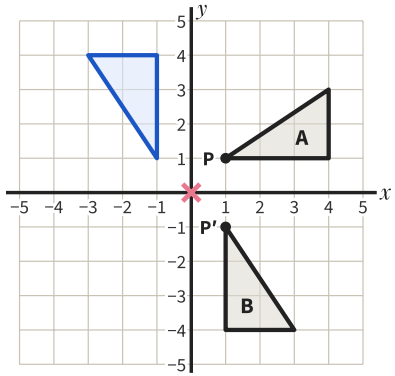
Rotate A 90° anticlockwise about (−1, 0).




P′ (−2, 2)

**8**

Rotate A 90° anticlockwise about (0, 0).
Leo drew B. What did he do wrong?




he turned clockwise

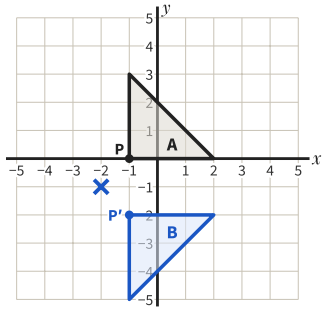
P′ should be (−1, 1)

# Rotating shapes *further practice*

ANSWERS

**9**

Rotate A 90° clockwise about (−2, −1).



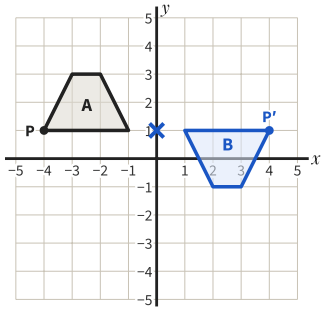

*mark (−2, −1) first*

*(−1, −2)*

P′ _____

**10**

Rotate the trapezium A 180° about (0, 1).




*a half turn, either way*

*(4, 1)*

P′ _____

**11**

The point (3, −2) is rotated 90° anticlockwise about (0, 0).
Write down the coordinates of its image.

*3 right, 2 down*

*turns to 3 up, 2 right*

*(2, 3)*

Answer _____

**12**

Kai rotates the point (4, 1) 90° anticlockwise about (1, 1). He says the image is (1, 3). Use the distance from the centre to show he is wrong, and find the image.

*(4, 1) is 3 right of the centre*

*(1, 3) is only 2 up, it should be 3*

*(1, 4)*

Answer _____

**13**

Triangle A has corners (1, 1), (4, 1) and (4, 5), and an area of 6 squares.
A is rotated 180° about (0, 0) to give B.
What is the area of B?
Explain how you know.

*a rotation keeps the shape and the size*

*it is only turned*

*6 squares*

Answer _____

**14**

A clock is drawn on a grid with its centre at (0, 0). The tip of the minute hand is at (0, 4). Where is the tip 15 minutes later? Where is it 30 minutes later?

*15 minutes: a quarter turn clockwise*

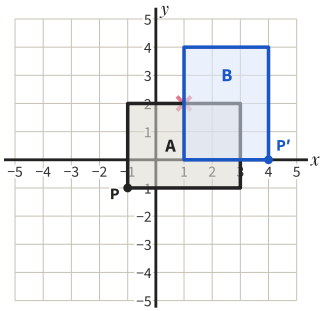
*30 minutes: a half turn*

*(4, 0) and (0, −4)*

Answer _____

**15**

A picture frame A hangs on a nail at (1, 2), the cross. It slips round 90° anticlockwise. Draw where it ends up.




*corners (4, 0), (4, 4), (1, 4), (1, 0)*

*(4, 0)*

P′ _____

**16**

Ella says a rotation of 180° needs a direction, clockwise or anticlockwise.
Explain why she is wrong.

*half a turn one way or the other*

*ends in the same place*

*Either way is the same*

Answer _____