Chapter 10: Transformations **Name:**

Rotation and Dilation

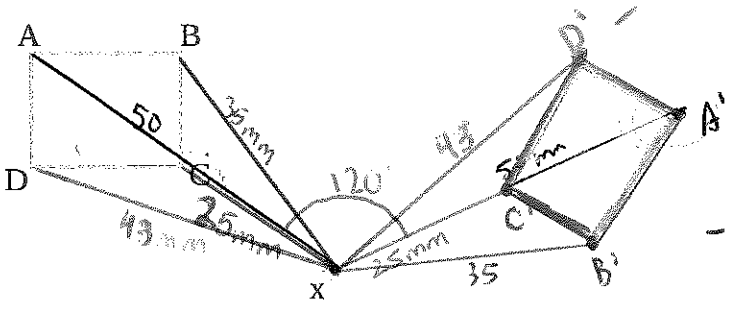
Rotations

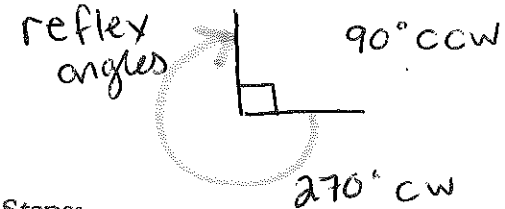
A transformation where the original shape is turned around a point to produce an image is called a **rotation**. The point the shape rotates around is called the **centre of rotation**. This fixed point may be inside the shape or outside the shape.

Rotation rules are given with degrees or fractions of a full rotation (eg. quarter turn = 90°) and direction **clockwise (cw)** or **counter clockwise (ccw)**

Practice: Rotate rectangle ABCD 120° clockwise around point x

120° cw





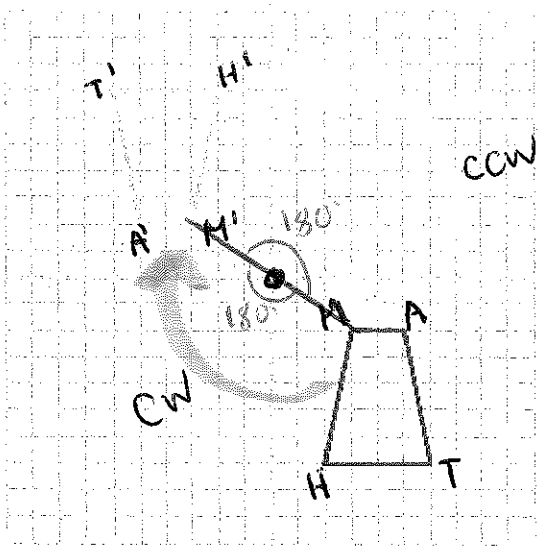
Steps:

1. Connect a point to the centre of rotation. This is the first leg of the angle.

2. Measure the length of the line and create a second leg for the given angle measure.

3. Label new point with ' (prime)

4. Repeat for all points on the original shape



What are the coordinates for the centre of rotation of this image?

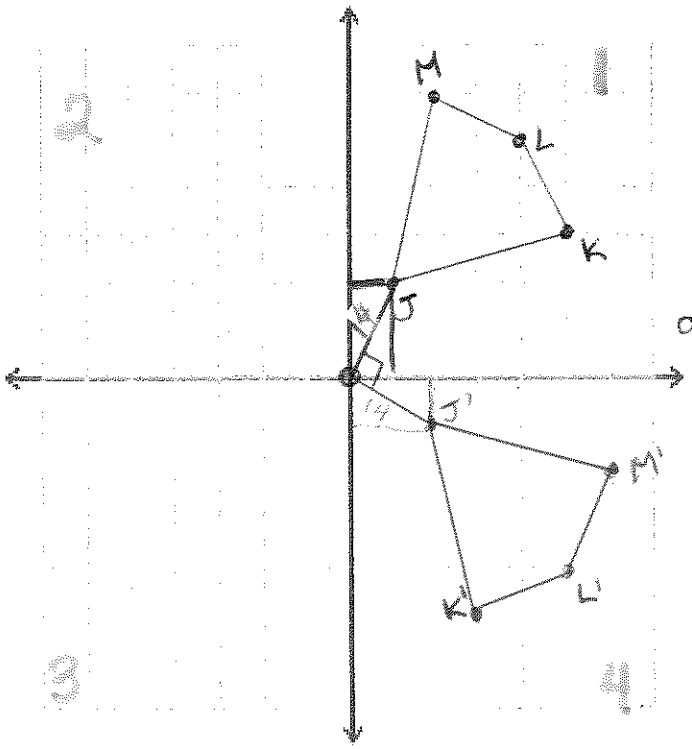
(0, 0) origin

What is the measure and direction of this rotation?

180 cw

or

180 ccw



A polygon has vertices at J(1, 2), K(5, 3), L(4, 5), M(2, 6).

Rotate the shape 270° counter clockwise around the origin.

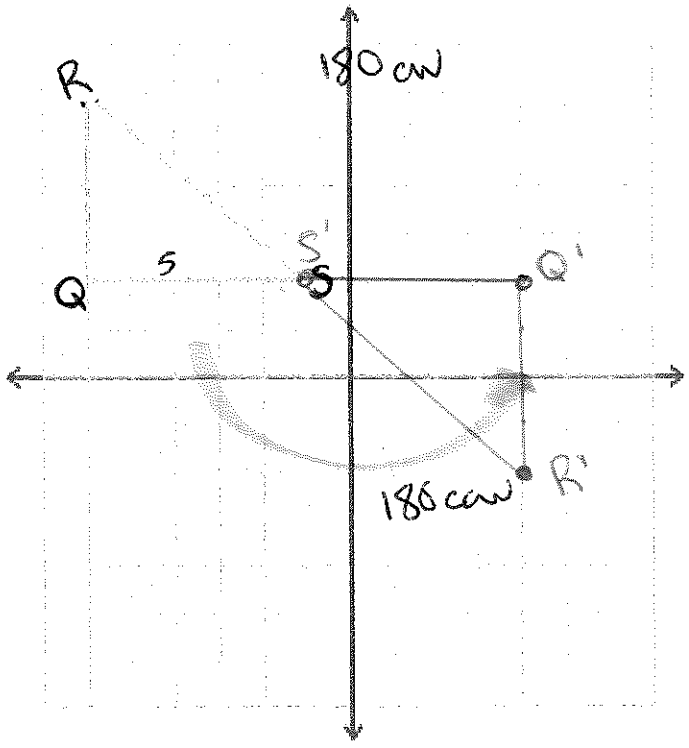
↳ 90° cw

What quadrant will the resulting image be in?

4

What are the coordinates of the image?

J' (2, -1)
K' (3, -5)
L' (5, -4)
M' (6, -2)



Rotate triangle QRS 180° cw around point S

S & S' are a shared point!

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