

Rotate each shape. Answer as the new coordinates.

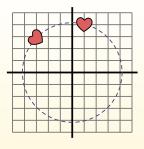
 θ = Angle of Rotation

Rotation Formula

$$x1 = x \times \cos(\theta) - y \times \sin(\theta)$$

$$y1 = x \times \sin(\theta) + y \times \cos(\theta)$$

In the example to the right the shape is at coordinates (1,4). Lets find the coordinates if we rotated the shape 60°.



1. $x1 = 1 \times \cos(60) - 4 \times \sin(60)$

$$y1 = 1 \times \sin(60) + 4 \times \cos(60)$$

2.
$$x1 = 1 \times 0.5 - 4 \times 0.87$$

 $y1 = 1 \times 0.87 + 4 \times 0.5$

3.
$$x1 = 0.5 - 3.48$$

$$y1 = 0.87 + 2$$

4.
$$x1 = -2.98$$

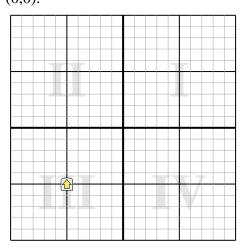
 $y1 = 2.87$

5. Looking at shape, we can see that rotated 60° it is at (-2.98, 2.87).

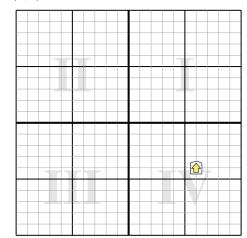


- 1. _____
- 2.
- 3. _____
- 4. _____

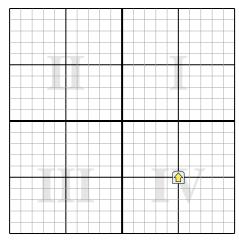
1) Rotate the shape -78° around the point (0,0).



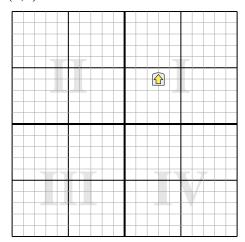
2) Rotate the shape -68° around the point (0,0).



3) Rotate the shape -255° around the point (0,0).



4) Rotate the shape -191° around the point (0,0).



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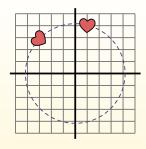
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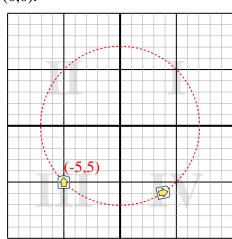
Name:

- 2. $x1 = 1 \times 0.5 - 4 \times 0.87$ $y1 = 1 \times 0.87 + 4 \times 0.5$
- 3. x1 = 0.5 - 3.48y1 = 0.87 + 2
- x1 = -2.98y1 = 2.87
- 5. Looking at shape, we can see that rotated 60° it is at (-2.98, 2.87).

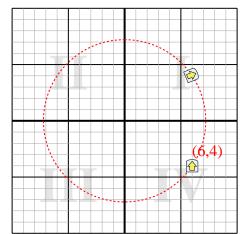
Answers

- (3.9, -5.9)

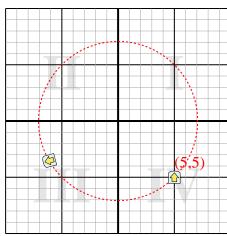
Rotate the shape -78° around the point (0,0).



Rotate the shape -68° around the point (0,0).



Rotate the shape -255° around the point (0,0).



Rotate the shape -191° around the point (0,0).

