



Rotate each shape. Answer as the new coordinates.

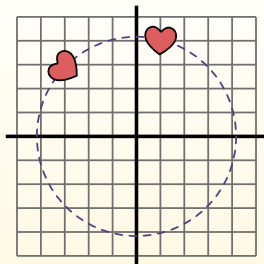
θ = Angle of Rotation

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° .



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

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

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

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

$$3. \quad x1 = 0.5 - 3.48$$

$$y1 = 0.87 + 2$$

$$4. \quad x1 = -2.98$$

$$y1 = 2.87$$

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

Answers

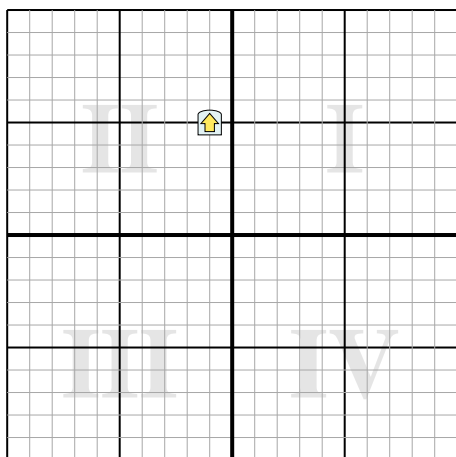
1. _____

2. _____

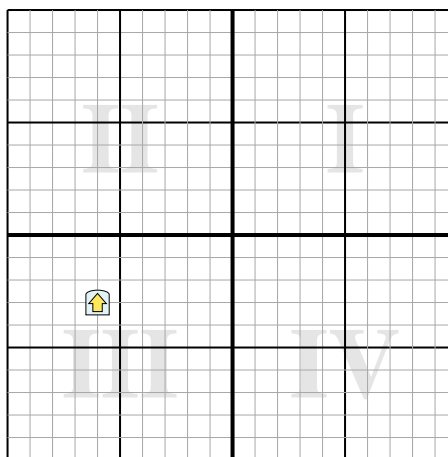
3. _____

4. _____

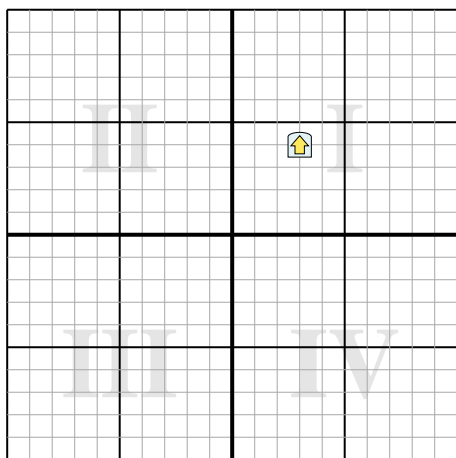
- 1) Rotate the shape 237° around the point (0,0).



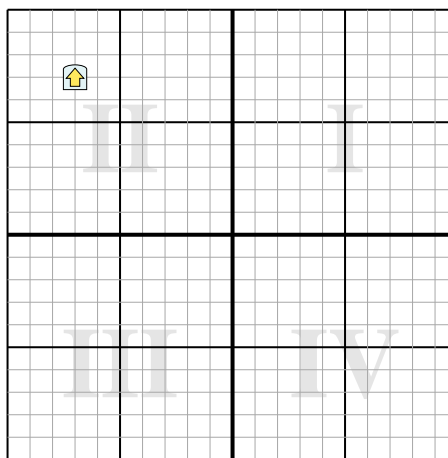
- 2) Rotate the shape -183° around the point (0,0).



- 3) Rotate the shape -220° around the point (0,0).



- 4) Rotate the shape 36° around the point (0,0).

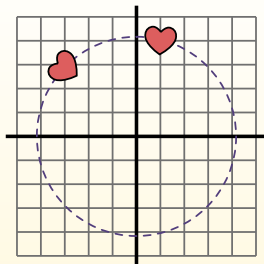


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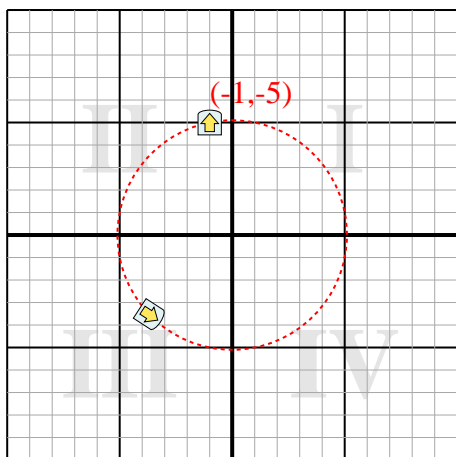
4. $x1 = -2.98$

$$y1 = 2.87$$

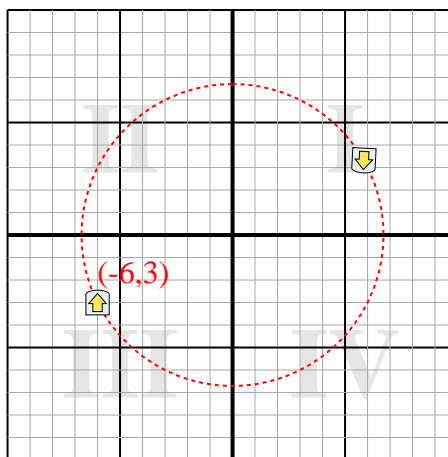
5. Looking at shape, we can see that rotated 60° it is at (-2.98 , 2.87).

Answers1. **(-3.6,-3.6)**2. **(5.8,3.3)**3. **(0.3,-5)**4. **(-1.5,9.8)**

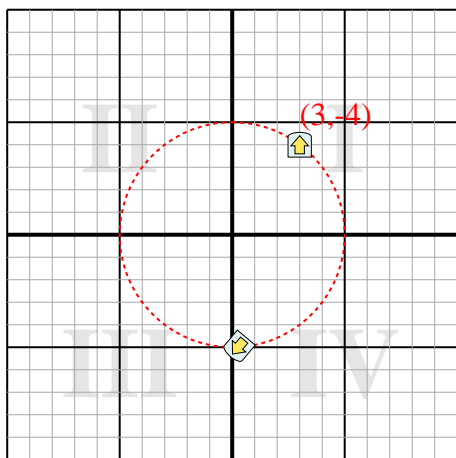
- 1) Rotate the shape 237° around the point (0,0).



- 2) Rotate the shape -183° around the point (0,0).



- 3) Rotate the shape -220° around the point (0,0).



- 4) Rotate the shape 36° around the point (0,0).

