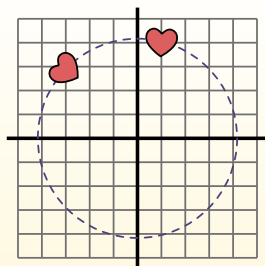


**Rotate each shape. Answer with the new coordinates.** θ = Angle of Rotation**Rotation Formula**

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

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

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).

Answers

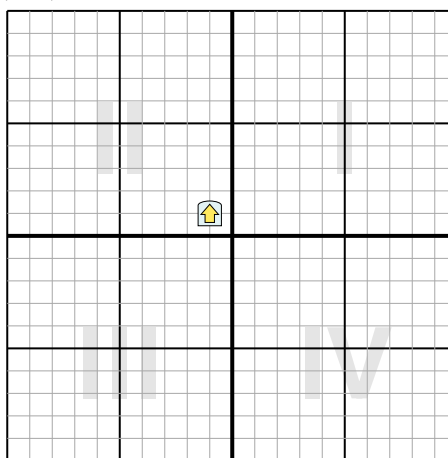
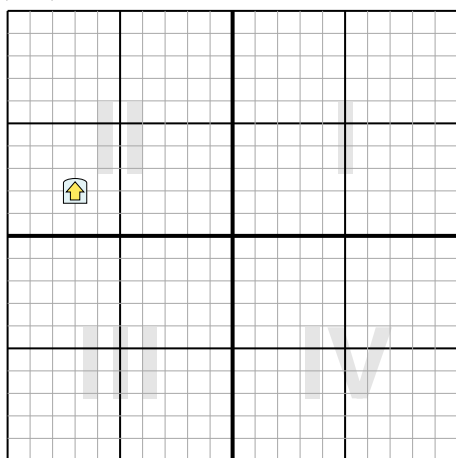
1. _____

2. _____

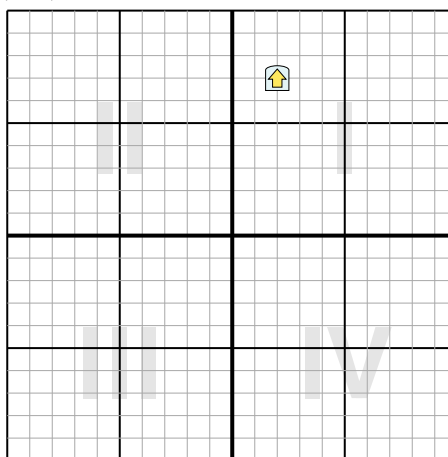
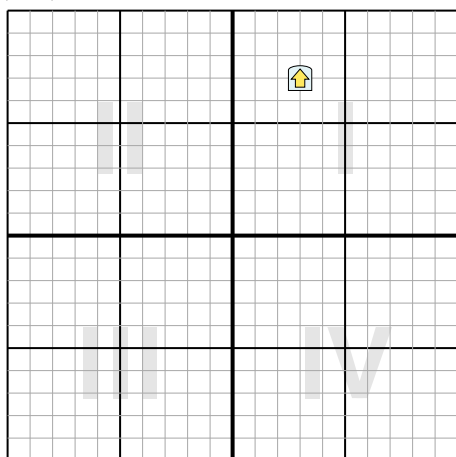
3. _____

4. _____

- 1) Rotate the shape -247° around the point (0,0). 2) Rotate the shape 272° around the point (0,0).



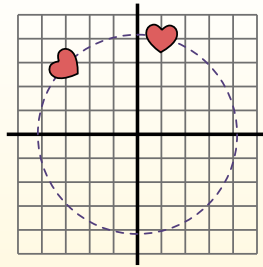
- 3) Rotate the shape 200° around the point (0,0). 4) Rotate the shape 63° around the point (0,0).



**Rotate each shape. Answer with the new coordinates.** θ = Angle of Rotation**Rotation Formula**

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

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



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. $x1 = 0.5 - 3.48$

$$y1 = 0.87 + 2$$

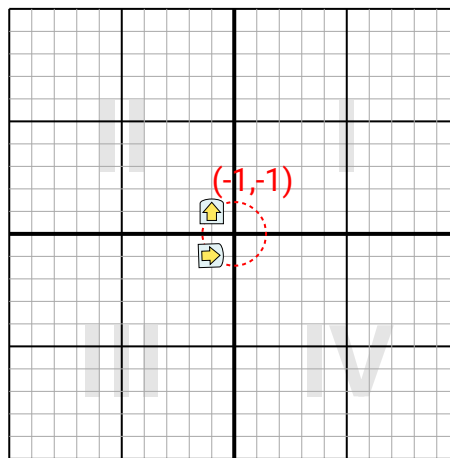
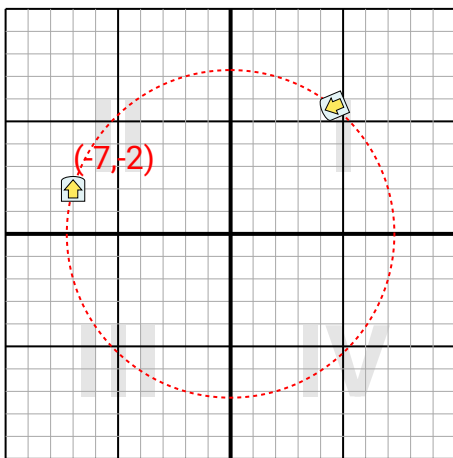
4. $x1 = -2.98$

$$y1 = 2.87$$

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

Answers1. **(4.6,5.7)**2. **(-1,-1)**3. **(-5.2,-5.6)**4. **(7.1,1.4)**

- 1) Rotate the shape -247° around the point (0,0). 2) Rotate the shape 272° around the point (0,0).



- 3) Rotate the shape 200° around the point (0,0). 4) Rotate the shape 63° around the point (0,0).

