



Rotate each shape. Answer with the new coordinates.

**Answers**

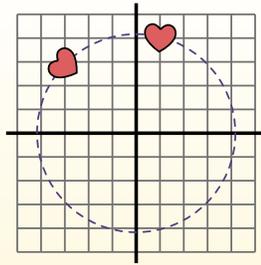
$\theta$  = Angle of Rotation

**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.  $x1 = 0.5 - 3.48$

$y1 = 0.87 + 2$

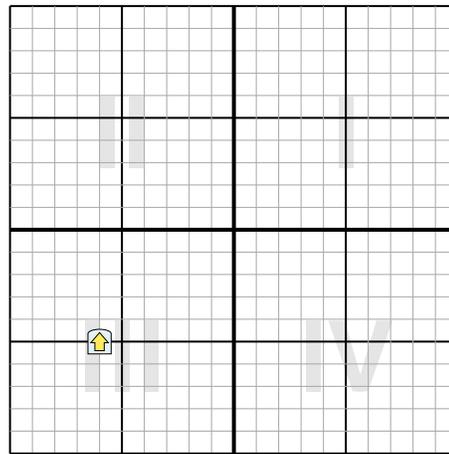
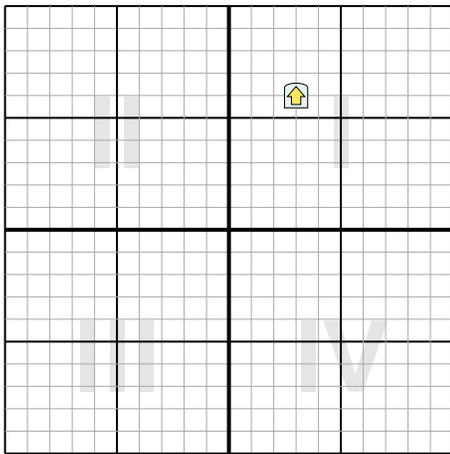
4.  $x1 = -2.98$

$y1 = 2.87$

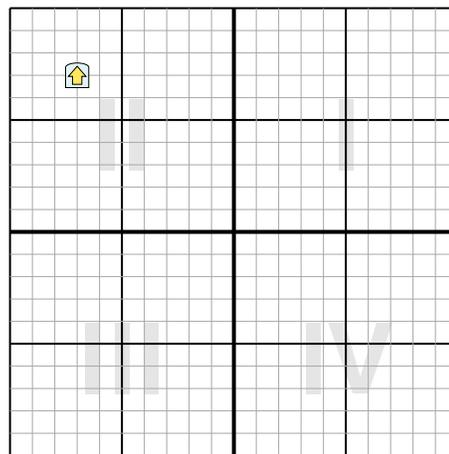
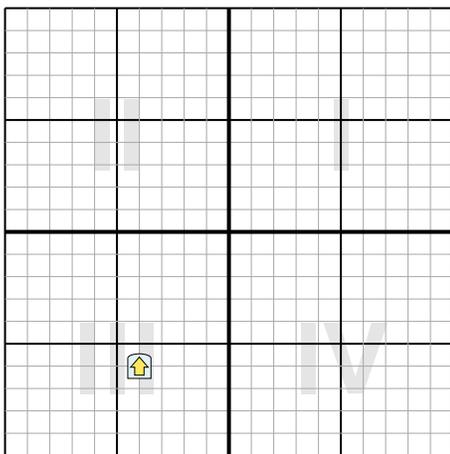
5. Looking at shape, we can see that rotated 60° it is at (-2.98, 2.87).

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_

- 1) Rotate the shape -238° around the point (0,0).
- 2) Rotate the shape 229° around the point (0,0).



- 3) Rotate the shape -61° around the point (0,0).
- 4) Rotate the shape 184° around the point (0,0).





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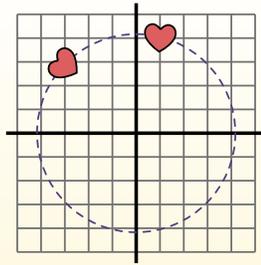
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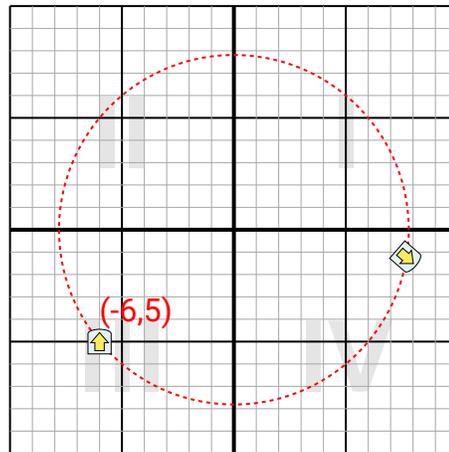
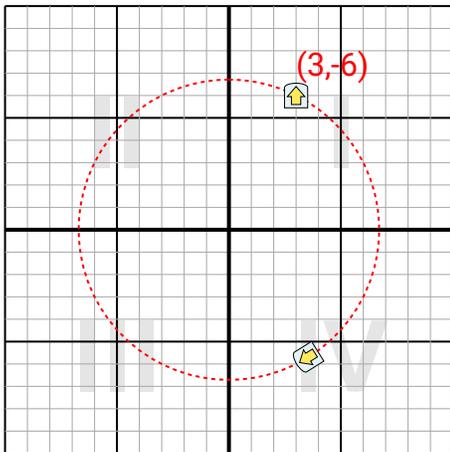
1. **(3.5,-5.7)**

2. **(7.7,-1.2)**

3. **(3.3,-6.4)**

4. **(6.5,-7.5)**

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