



Rotate each shape. Answer as the new coordinates.

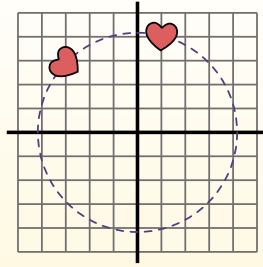
θ = Angle of Rotation

Rotation Formula

$$x_1 = x \times \cos(\theta) - y \times \sin(\theta)$$

$$y_1 = x \times \sin(\theta) + y \times \cos(\theta)$$

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



1. $x_1 = 1 \times \cos(60) - 4 \times \sin(60)$
 $y_1 = 1 \times \sin(60) + 4 \times \cos(60)$

2. $x_1 = 1 \times 0.5 - 4 \times 0.87$
 $y_1 = 1 \times 0.87 + 4 \times 0.5$

3. $x_1 = 0.5 - 3.48$
 $y_1 = 0.87 + 2$

4. $x_1 = -2.98$
 $y_1 = 2.87$

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

Answers

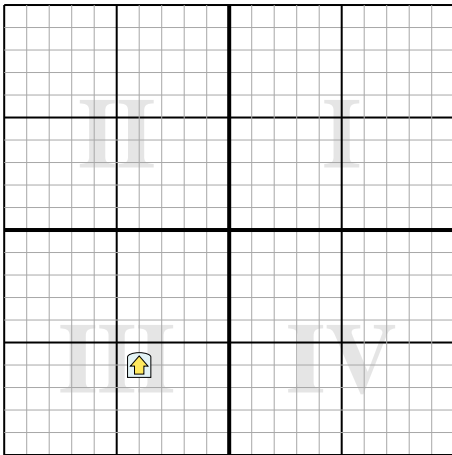
1. _____

2. _____

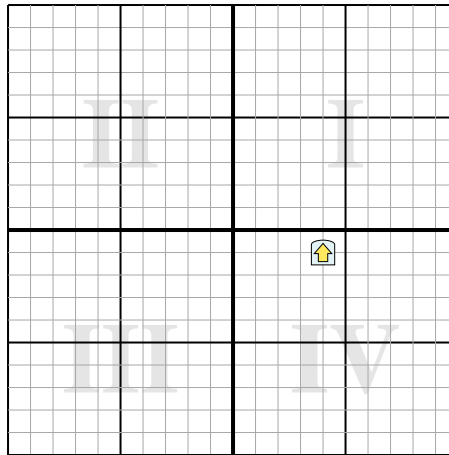
3. _____

4. _____

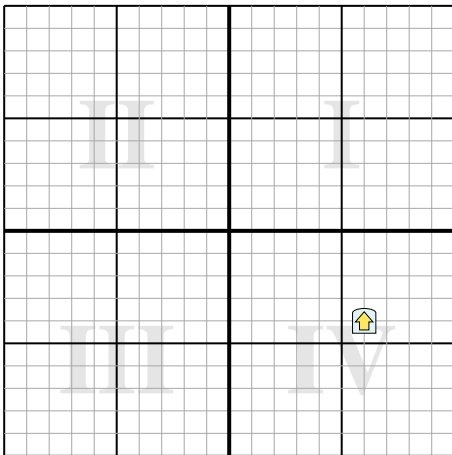
1) Rotate the shape -328° around the point (0,0)..



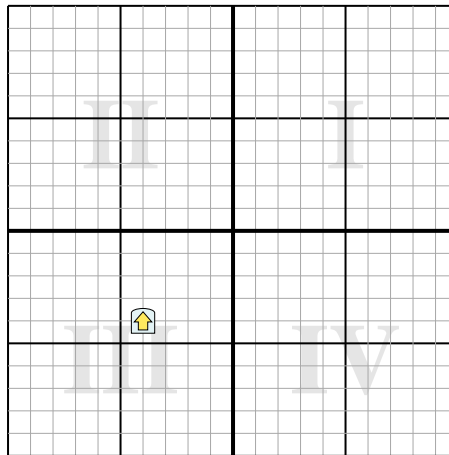
2) Rotate the shape -230° around the point (0,0)..



3) Rotate the shape 263° around the point (0,0)..



4) Rotate the shape -279° around the point (0,0)..





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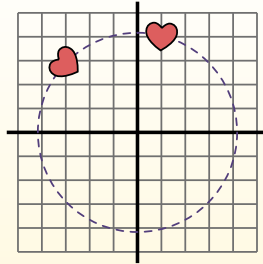
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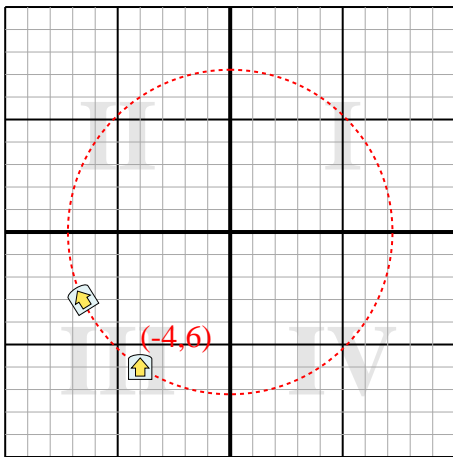


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 $y1 = 1 \times \sin(60) + 4 \times \cos(60)$
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 $y1 = 0.87 + 2$
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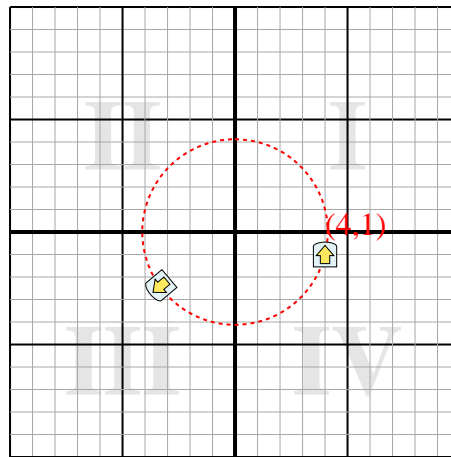
Answers

1. **(-6.6,-3)**
2. **(-3.3,-2.4)**
3. **(3.2,6.4)**
4. **(-4.6,3.3)**

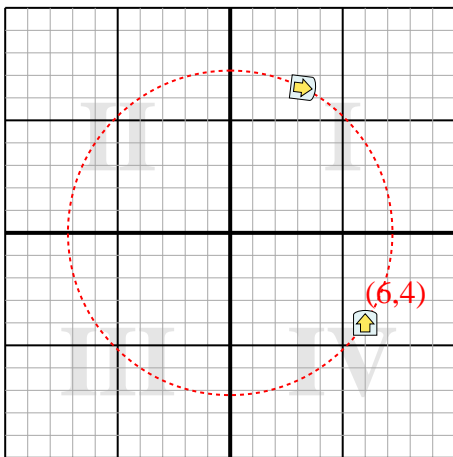
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