Name:

Rotate each shape. Answer as the new coordinates.
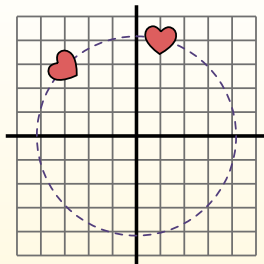
θ = Angle of Rotation

Rotation Formula

$x1 = x×cos(θ) - y×sin(θ)$
$y1 = x×sin(θ) + y×cos(θ)$

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

1. $x1 = 1×cos(60) - 4×sin(60)$
$y1 = 1×sin(60) + 4×cos(60)$

2. $x1 = 1×0.5 - 4×0.87$
$y1 = 1×0.87 + 4×0.5$

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 76° around the point (0,0).

2) Rotate the shape 192° around the point (0,0).

3) Rotate the shape 290° around the point (0,0).

4) Rotate the shape -62° around the point (0,0).

1-4 | 75 | 50 | 25 | 0

Name:

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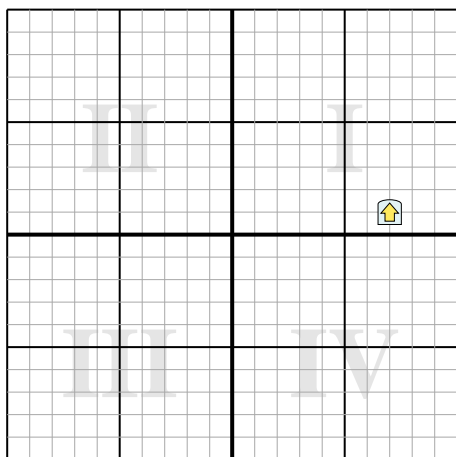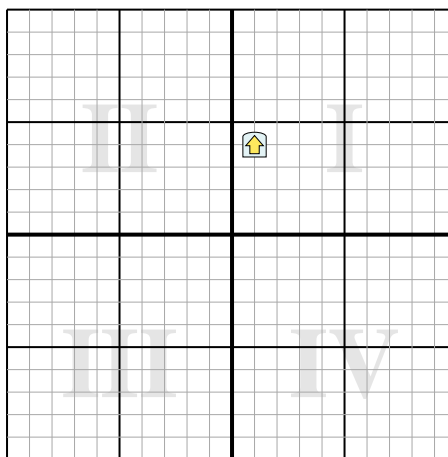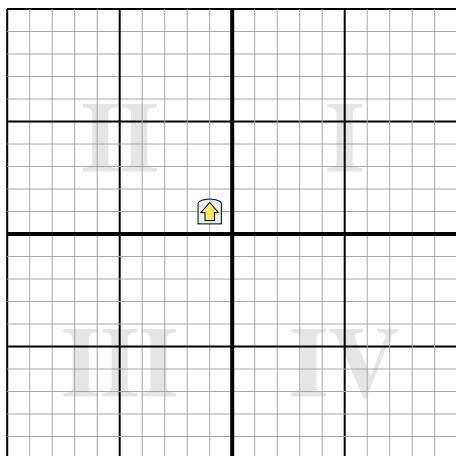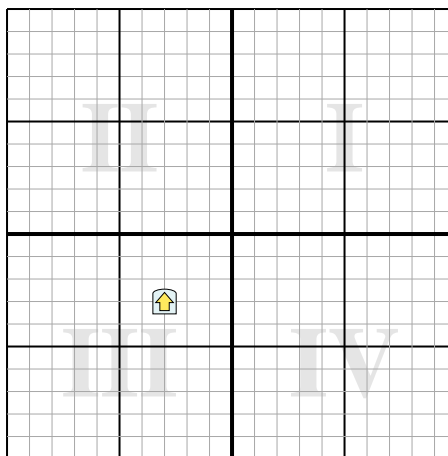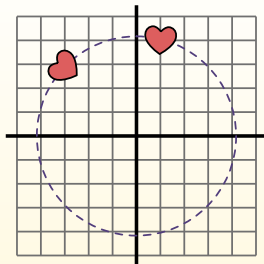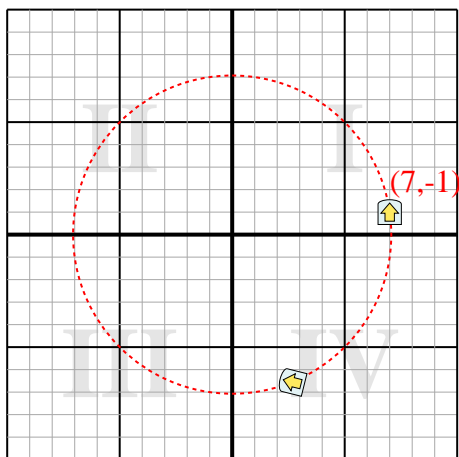
1. $x1 = 1 \times \cos(60) - 4 \times \sin(60)$
   $y1 = 1 \times \sin(60) + 4 \times \cos(60)$
2. $x1 = 1 \times 0.5 - 4 \times 0.87$
   $y1 = 1 \times 0.87 + 4 \times 0.5$
3. $x1 = 0.5 - 3.48$
   $y1 = 0.87 + 2$
4. $x1 = -2.98$
   $y1 = 2.87$
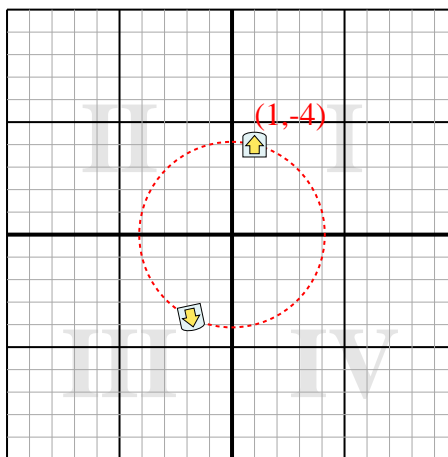5. Looking at shape, we can see that rotated 60° it is at (-2.98 , 2.87).

Answers

1. **(2.7,-6.6)**
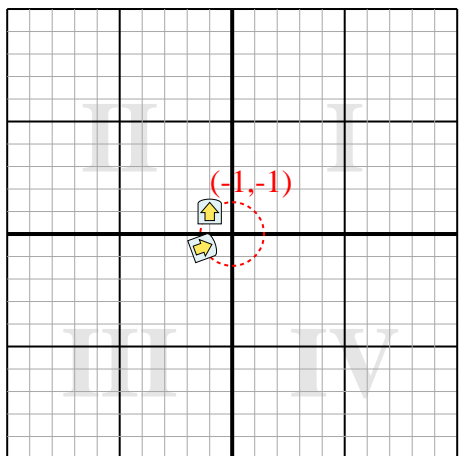
2. **(-1.8,-3.7)**

3. **(-1.3,-0.6)**

4. **(1.2,-4.1)**

1) Rotate the shape 76° around the point (0,0).

(7,-1)

2) Rotate the shape 192° around the point (0,0).

(1,-4)

3) Rotate the shape 290° around the point (0,0).

(-1,-1)

4) Rotate the shape -62° around the point (0,0).

(-3,3)

1-4 | 75 | 50 | 25 | 0