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)

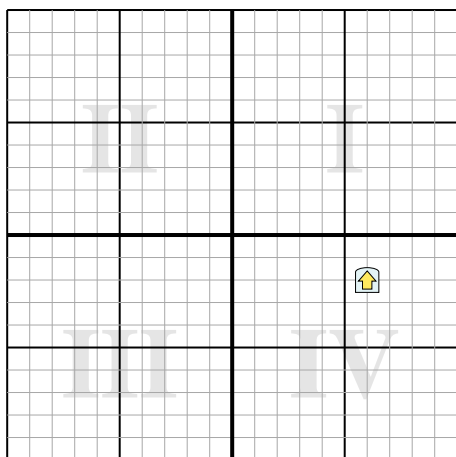In the example to the right the shape is at coordinates (1,4). Lets find the coordinates if we rotated the shape 60°.

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

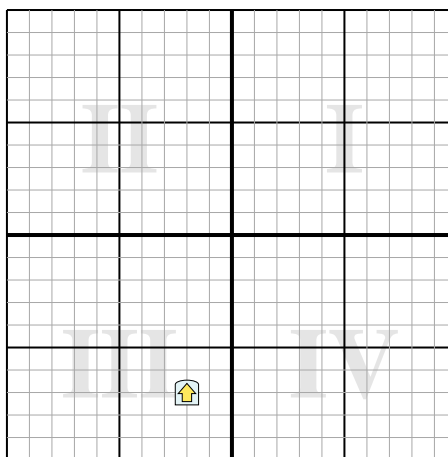**5.** Looking at shape, we can see that rotated 60° it is at (-2.98 , 2.87).

1. _____
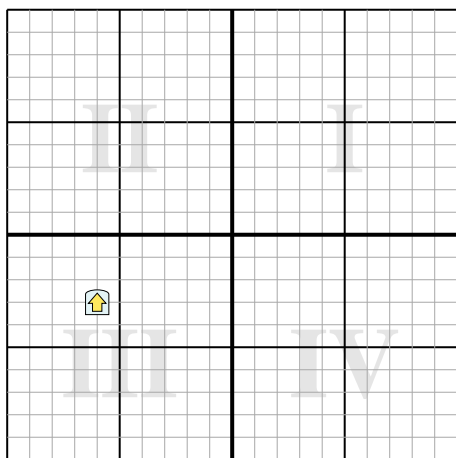
2. _____

3. _____

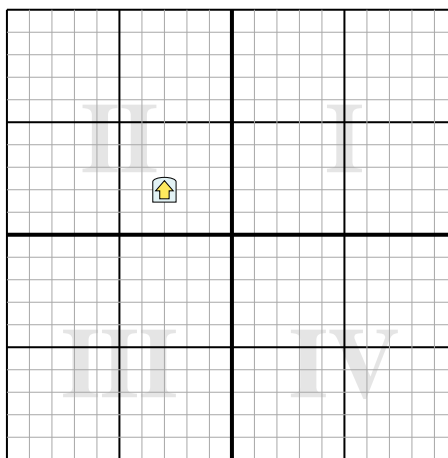4. _____

1) Rotate the shape -185° around the point (0,0).

2) Rotate the shape 132° around the point (0,0).

3) Rotate the shape 67° around the point (0,0).

4) Rotate the shape -313° around the point (0,0).

Math

1-4 | 75 | 50 | 25 | 0 |

Name:

Rotate each shape. Answer as the new coordinates.

θ = Angle of Rotation

Rotation Formula

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

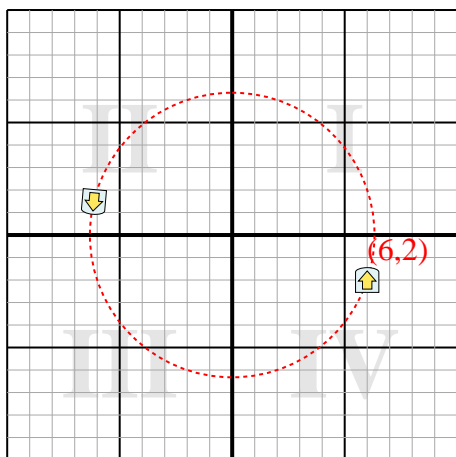In the example to the right the shape is at coordinates (1,4). Lets find the coordinates if we rotated the shape 60°.

1. $x1 = 1×\cos(60) - 4×\sin(60)$
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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. $x1 = -2.98$
    $y1 = 2.87$

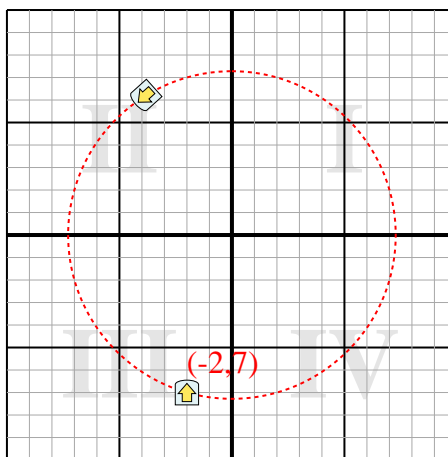**5.** Looking at shape, we can see that rotated 60° it is at (-2.98 , 2.87).

Answers

1. **(-6.2,1.5)**

2. **(-3.9,6.2)**
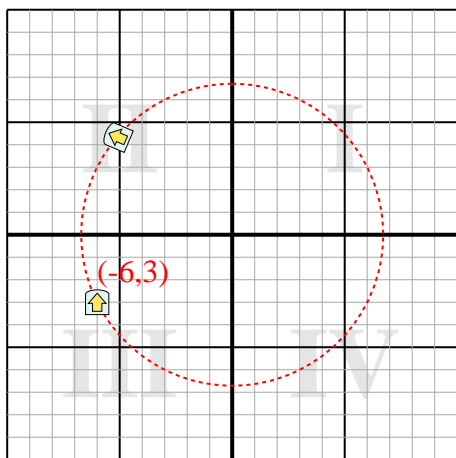
3. **(-5.1,4.4)**

4. **(-0.6,3.6)**

1) Rotate the shape -185° around the point (0,0).

(6,2)

2) Rotate the shape 132° around the point (0,0).

(-2,7)

3) Rotate the shape 67° around the point (0,0).

(-6,3)

4) Rotate the shape -313° around the point (0,0).

(-3,)

Math

1-4 | 75 | 50 | 25 | 0