



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°.

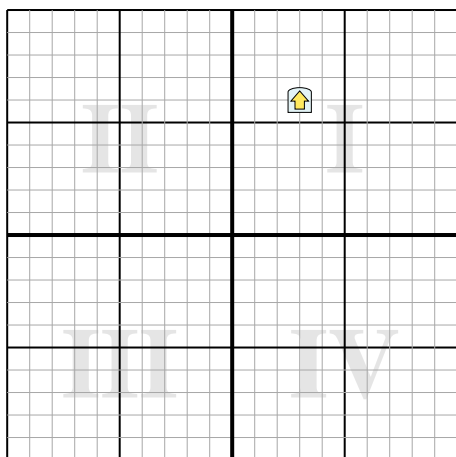


1. $x1 = 1 \times \cos(60) - 4 \times \sin(60)$
 $y1 = 1 \times \sin(60) + 4 \times \cos(60)$
2. $x1 = 1 \times 0.5 - 4 \times 0.87$
 $y1 = 1 \times 0.87 + 4 \times 0.5$
3. $x1 = 0.5 - 3.48$
 $y1 = 0.87 + 2$
4. $x1 = -2.98$
 $y1 = 2.87$
5. Looking at shape, we can see that rotated 60° it is at (-2.98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

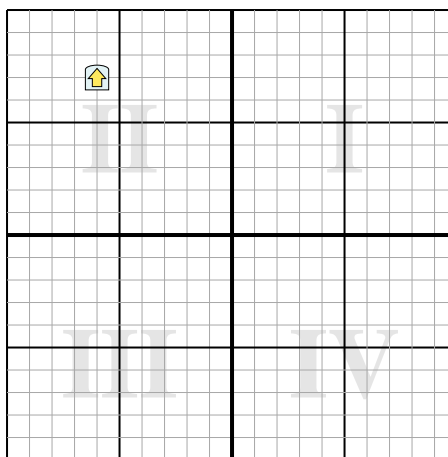
Answers

1. _____
2. _____
3. _____
4. _____

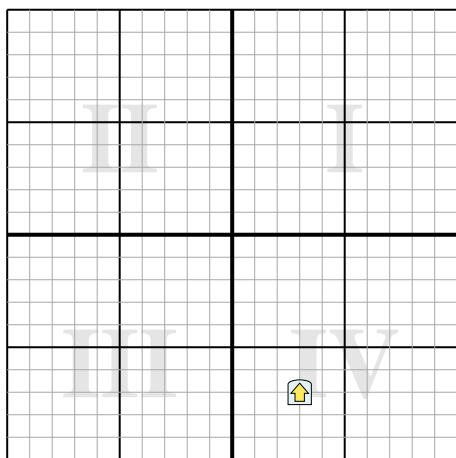
- 1) Rotate the shape 231° around the point (0,0).



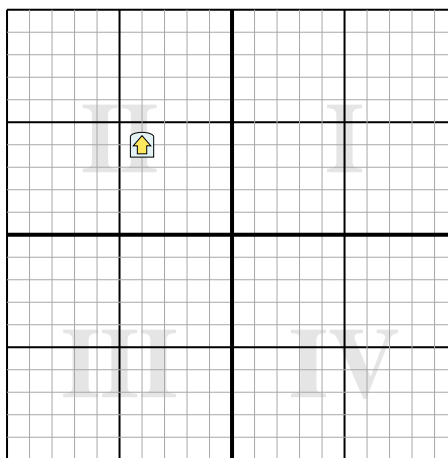
- 2) Rotate the shape -205° around the point (0,0).



- 3) Rotate the shape -134° around the point (0,0).



- 4) Rotate the shape -224° around the point (0,0).





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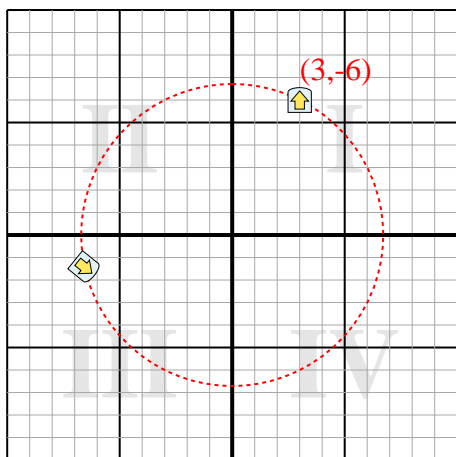


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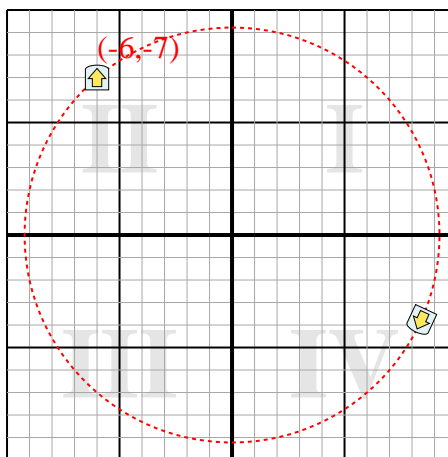
Answers

1. **(-6.6,-1.4)**
2. **(8.4,-3.8)**
3. **(3,7)**
4. **(5.7,-0.1)**

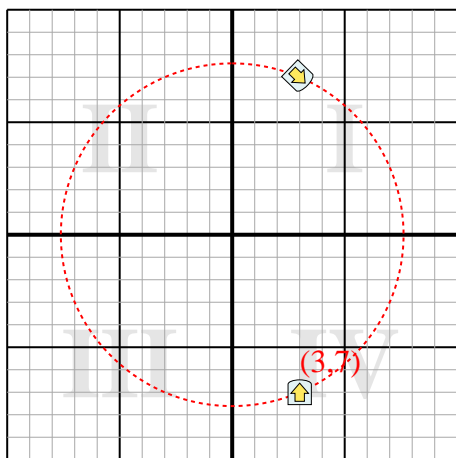
- 1) Rotate the shape 231° around the point (0,0).



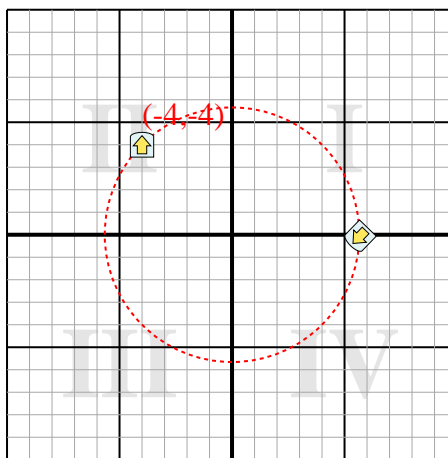
- 2) Rotate the shape -205° around the point (0,0).



- 3) Rotate the shape -134° around the point (0,0).



- 4) Rotate the shape -224° around the point (0,0).





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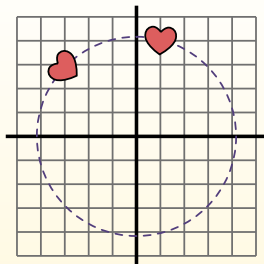
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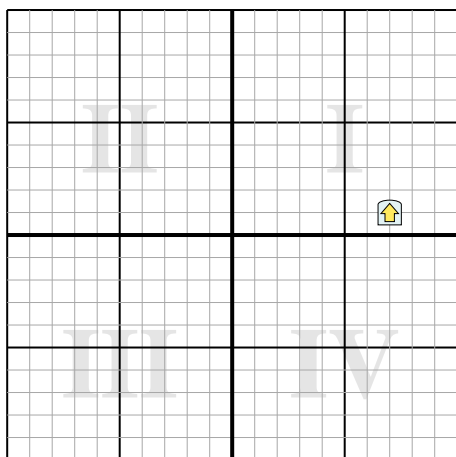


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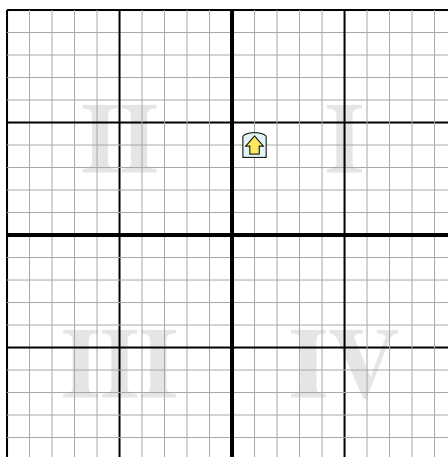
Answers

1. _____
2. _____
3. _____
4. _____

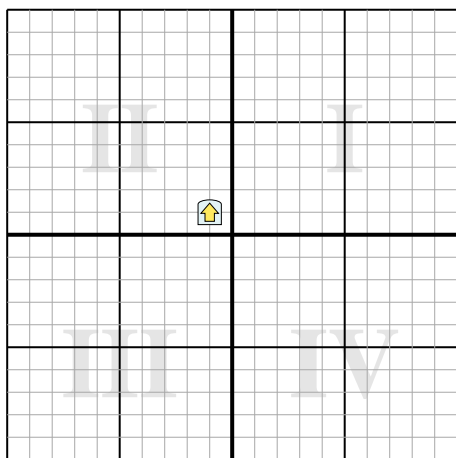
- 1) Rotate the shape 76° around the point (0,0).



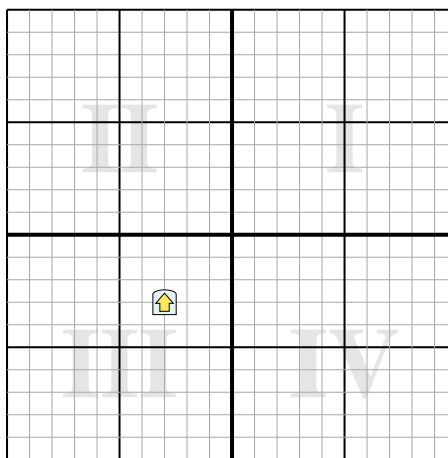
- 2) Rotate the shape 192° around the point (0,0).



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



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





Rotate each shape. Answer as the new coordinates.

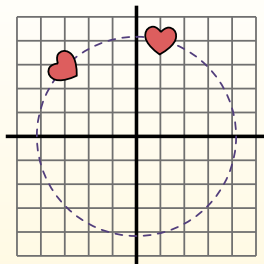
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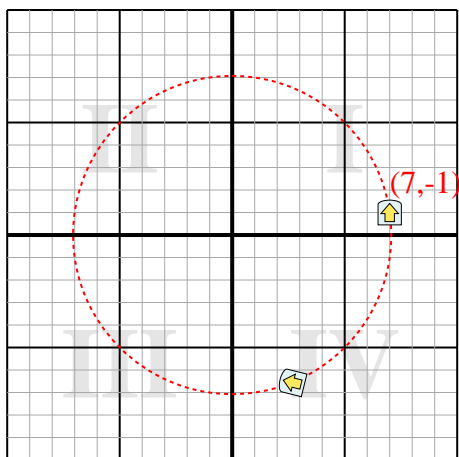


1. $x1 = 1 \times \cos(60) - 4 \times \sin(60)$
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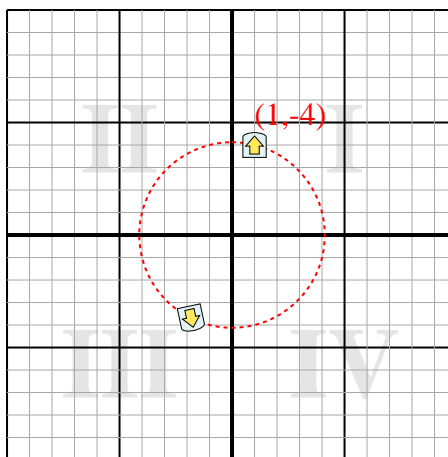
Answers

1. **(2.7,-6.6)**
2. **(-1.8,-3.7)**
3. **(-1.3,-0.6)**
4. **(1.2,-4.1)**

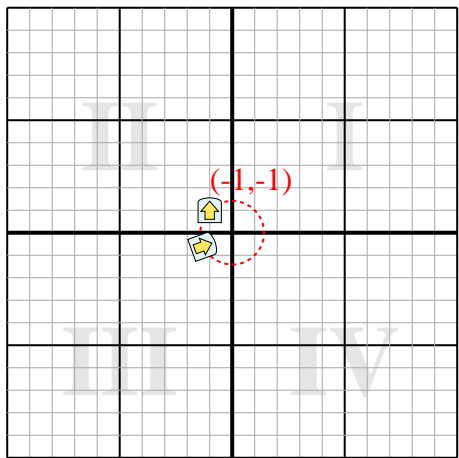
- 1) Rotate the shape 76° around the point (0,0).



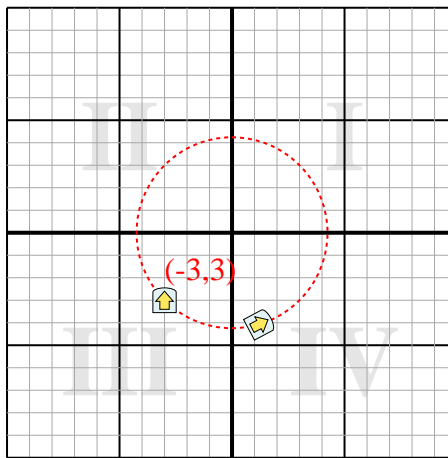
- 2) Rotate the shape 192° around the point (0,0).



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



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





Rotate each shape. Answer as the new coordinates.

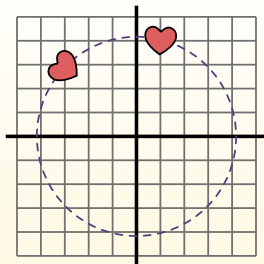
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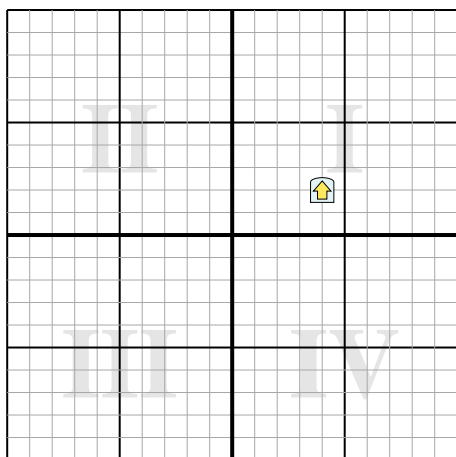


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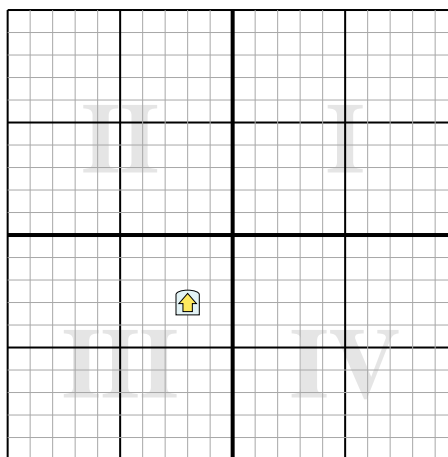
Answers

1. _____
2. _____
3. _____
4. _____

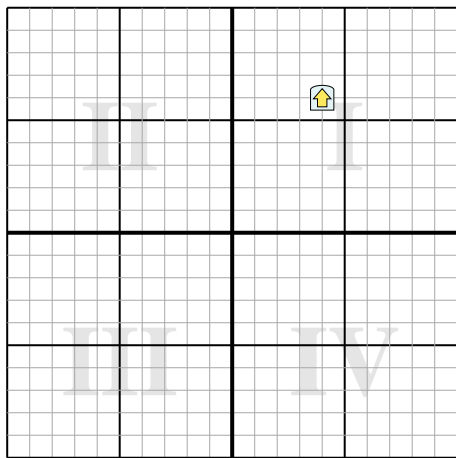
- 1) Rotate the shape -230° around the point (0,0).



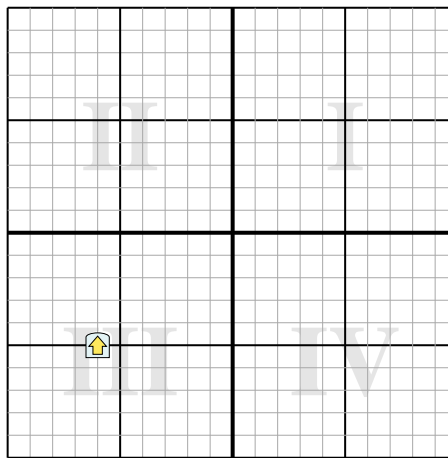
- 2) Rotate the shape 149° around the point (0,0).



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



- 4) Rotate the shape 216° around the point (0,0).





Rotate each shape. Answer as the new coordinates.

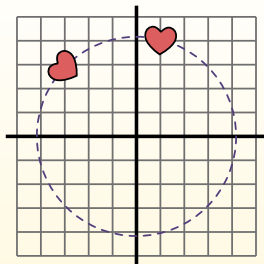
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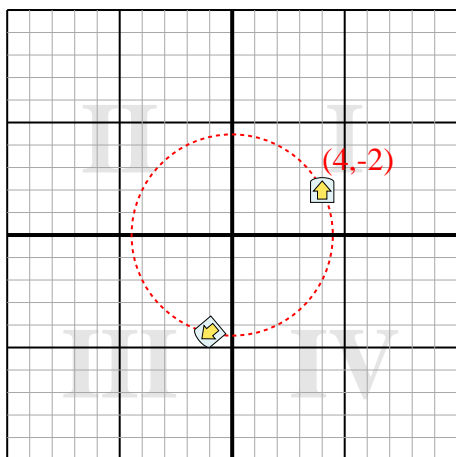


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2. $x1 = 1 \times 0.5 - 4 \times 0.87$
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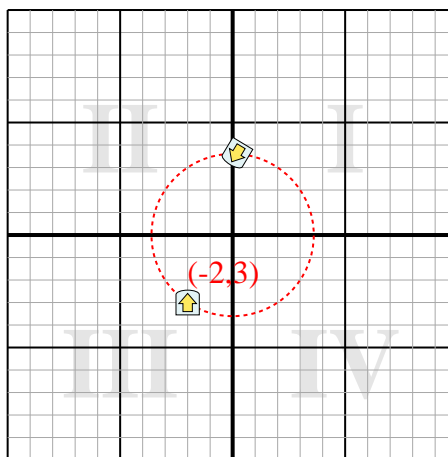
Answers

1. **(-1,-4.3)**
2. **(0.2,3.6)**
3. **(-3.6,-6.3)**
4. **(7.8,0.5)**

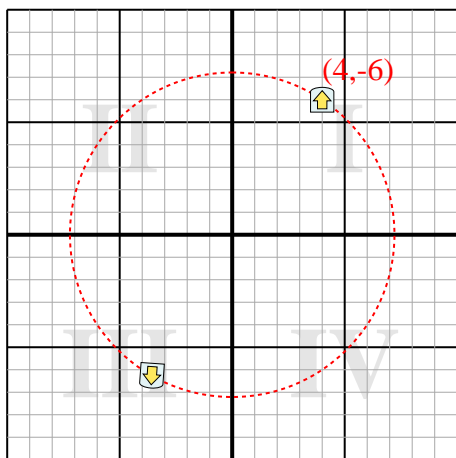
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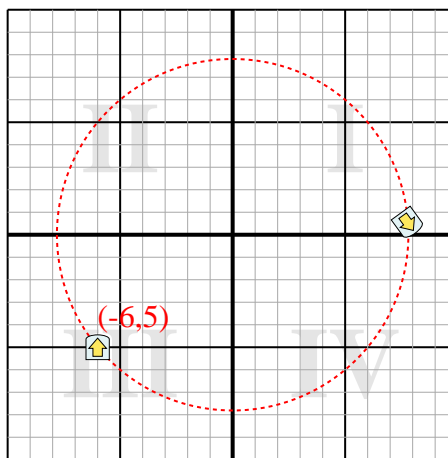
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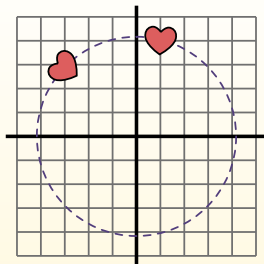
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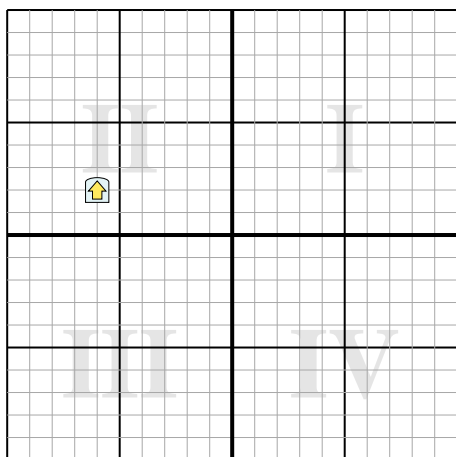


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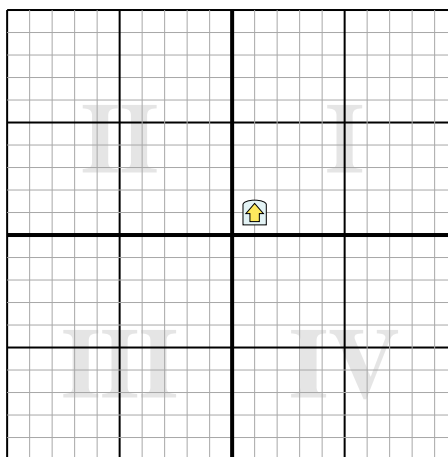
Answers

1. _____
2. _____
3. _____
4. _____

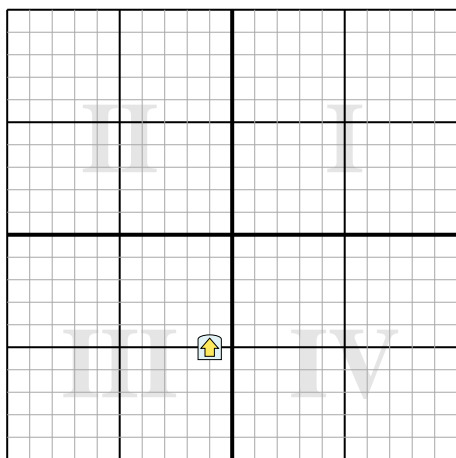
- 1) Rotate the shape 203° around the point (0,0).



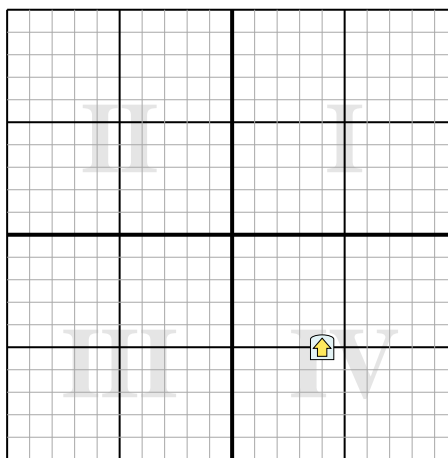
- 2) Rotate the shape -120° around the point (0,0).



- 3) Rotate the shape 183° around the point (0,0).



- 4) Rotate the shape -35° around the point (0,0).





Rotate each shape. Answer as the new coordinates.

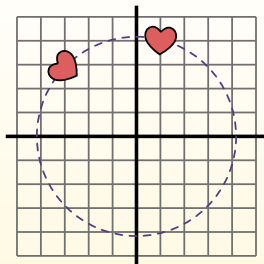
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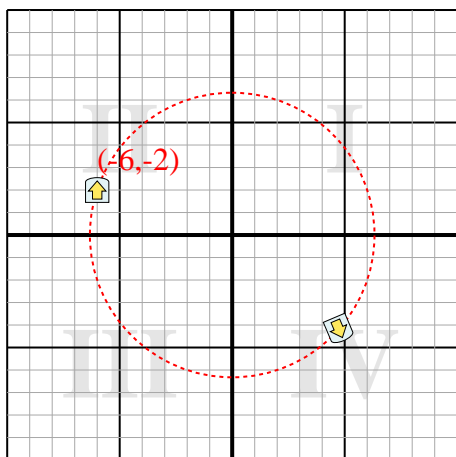


- $x1 = 1 \times \cos(60) - 4 \times \sin(60)$
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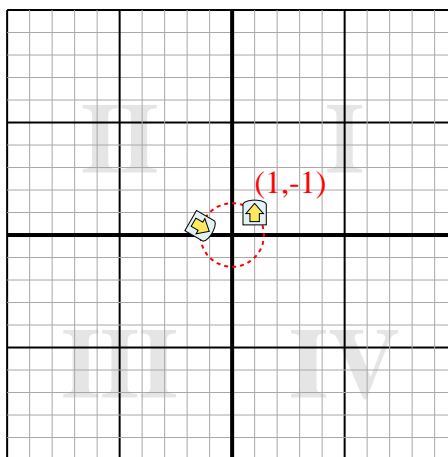
Answers

- (4.7,-4.2)
- (-1.4,0.4)
- (1.3,4.9)
- (6.1,-1.8)

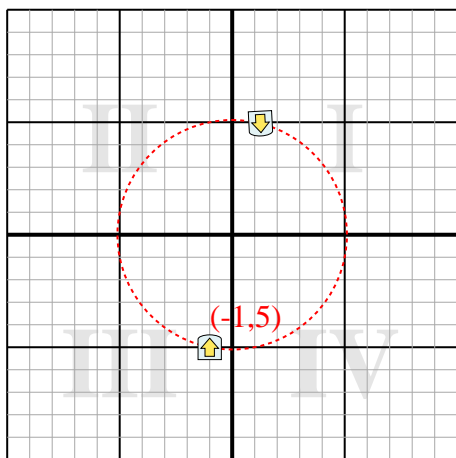
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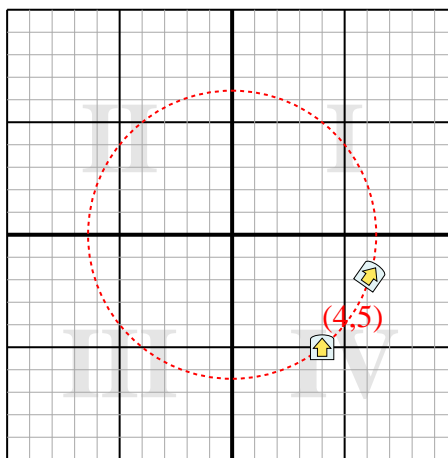
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- 3) Rotate the shape 183° around the point (0,0).



- 4) Rotate the shape -35° around the point (0,0).





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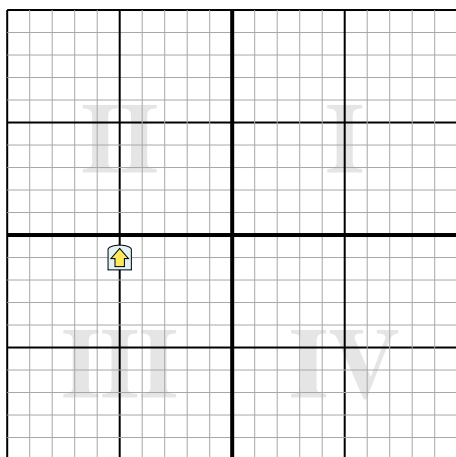


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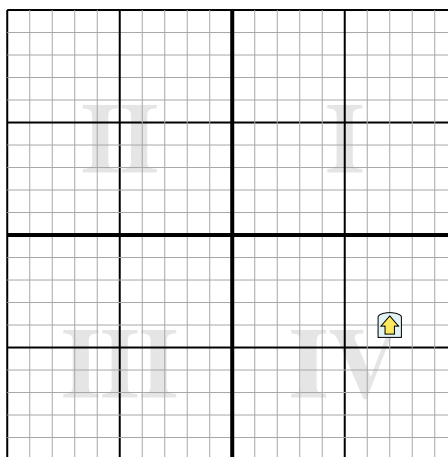
Answers

1. _____
2. _____
3. _____
4. _____

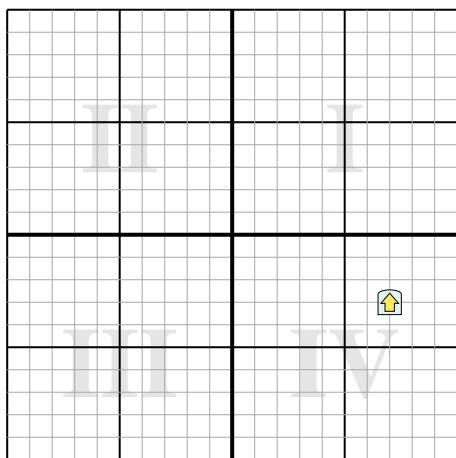
- 1) Rotate the shape -154° around the point (0,0).



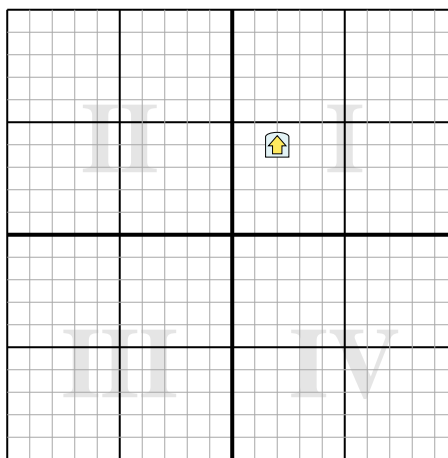
- 2) Rotate the shape 182° around the point (0,0).



- 3) Rotate the shape 204° around the point (0,0).



- 4) Rotate the shape -127° around the point (0,0).





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

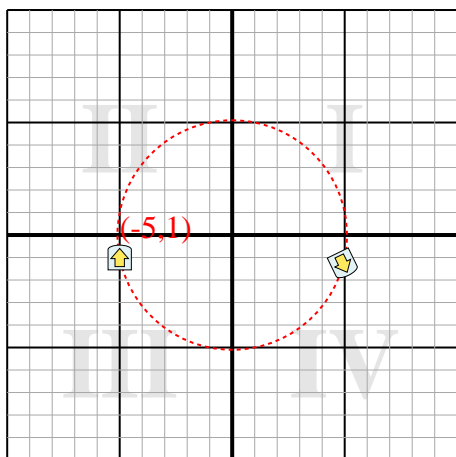


1. $x1 = 1 \times \cos(60) - 4 \times \sin(60)$
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2. $x1 = 1 \times 0.5 - 4 \times 0.87$
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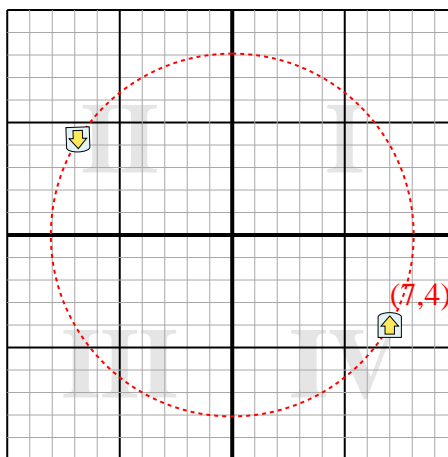
Answers

1. **(4.9,-1.3)**
2. **(-6.9,4.2)**
3. **(-5.2,5.6)**
4. **(-4.4,-0.8)**

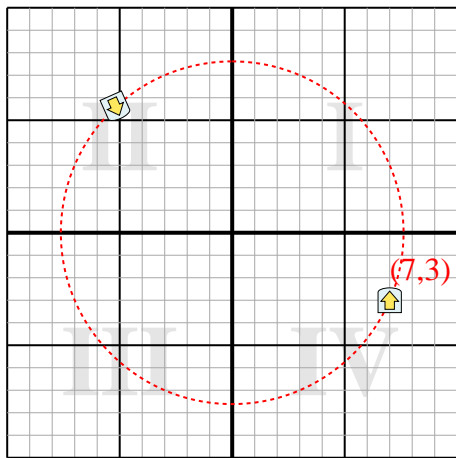
- 1) Rotate the shape -154° around the point (0,0).



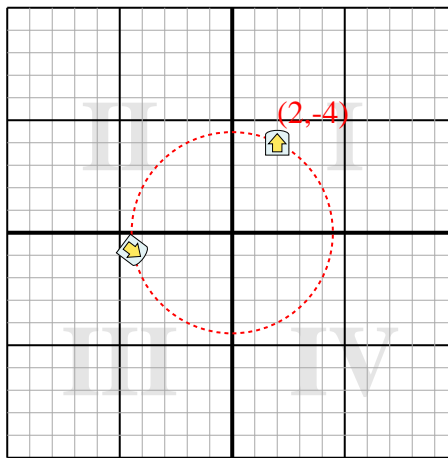
- 2) Rotate the shape 182° around the point (0,0).



- 3) Rotate the shape 204° around the point (0,0).



- 4) Rotate the shape -127° around the point (0,0).





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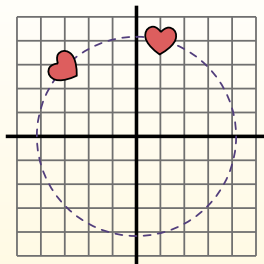
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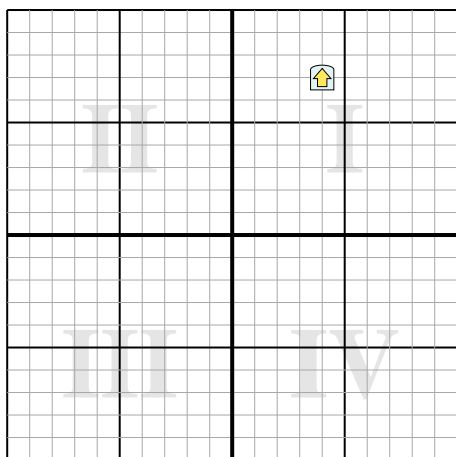


1. $x1 = 1 \times \cos(60) - 4 \times \sin(60)$
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3. $x1 = 0.5 - 3.48$
 $y1 = 0.87 + 2$
4. $x1 = -2.98$
 $y1 = 2.87$
5. Looking at shape, we can see that rotated 60° it is at (-2.98 , 2.87).

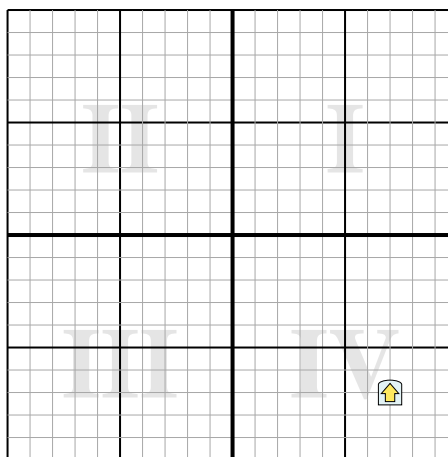
Answers

1. _____
2. _____
3. _____
4. _____

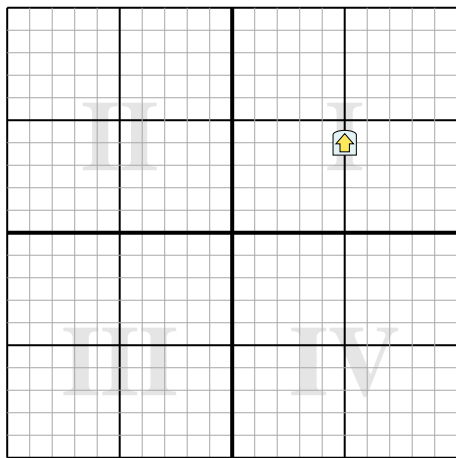
- 1) Rotate the shape 99° around the point (0,0).



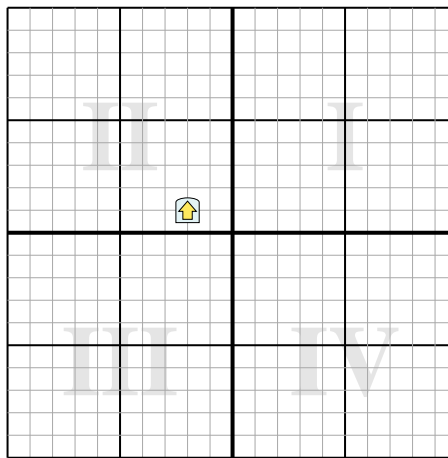
- 2) Rotate the shape -40° around the point (0,0).



- 3) Rotate the shape -292° around the point (0,0).



- 4) Rotate the shape 45° around the point (0,0).





Rotate each shape. Answer as the new coordinates.

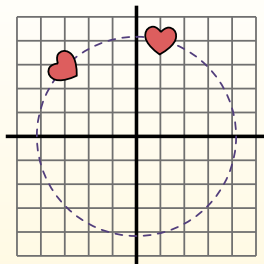
θ = Angle of Rotation

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°.

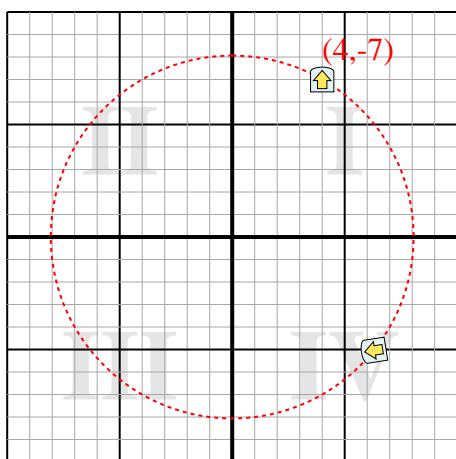


- $x1 = 1 \times \cos(60) - 4 \times \sin(60)$
 $y1 = 1 \times \sin(60) + 4 \times \cos(60)$
- $x1 = 1 \times 0.5 - 4 \times 0.87$
 $y1 = 1 \times 0.87 + 4 \times 0.5$
- $x1 = 0.5 - 3.48$
 $y1 = 0.87 + 2$
- $x1 = -2.98$
 $y1 = 2.87$
- Looking at shape, we can see that rotated 60° it is at (-2.98 , 2.87).

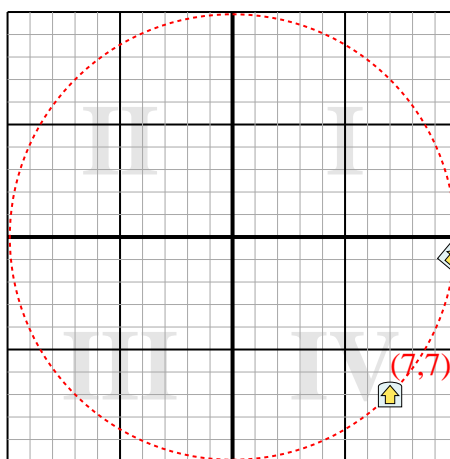
Answers

- (6.3,-5)
- (9.9,-0.9)
- (5.6,-3.1)
- (-0.7,2.1)

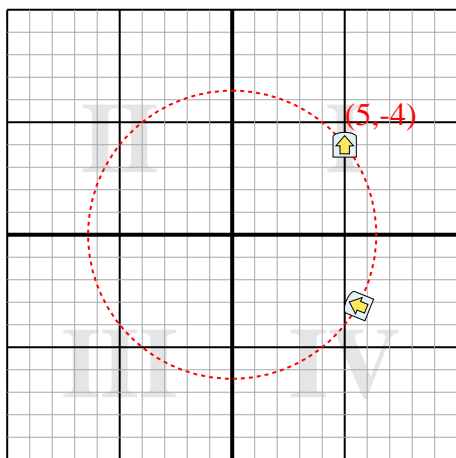
- 1) Rotate the shape 99° around the point (0,0).



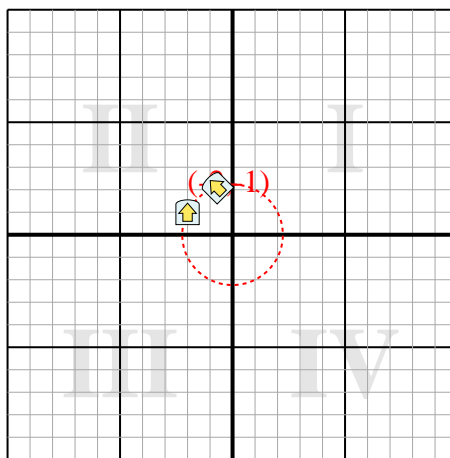
- 2) Rotate the shape -40° around the point (0,0).



- 3) Rotate the shape -292° around the point (0,0).



- 4) Rotate the shape 45° around the point (0,0).





Rotate each shape. Answer as the new coordinates.

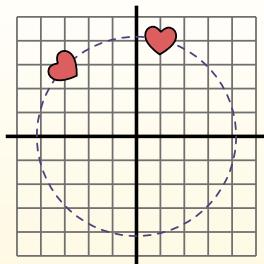
θ = Angle of Rotation

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°.

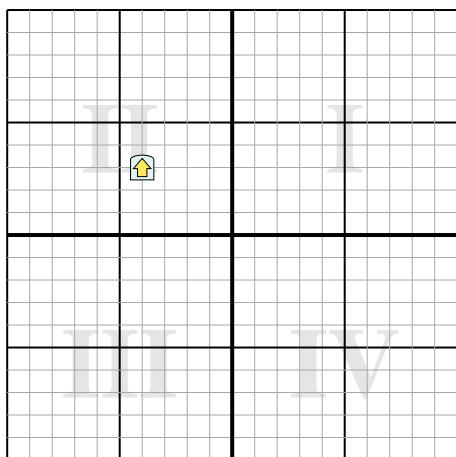


1. $x1 = 1 \times \cos(60) - 4 \times \sin(60)$
 $y1 = 1 \times \sin(60) + 4 \times \cos(60)$
2. $x1 = 1 \times 0.5 - 4 \times 0.87$
 $y1 = 1 \times 0.87 + 4 \times 0.5$
3. $x1 = 0.5 - 3.48$
 $y1 = 0.87 + 2$
4. $x1 = -2.98$
 $y1 = 2.87$
5. Looking at shape, we can see that rotated 60° it is at (-2.98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

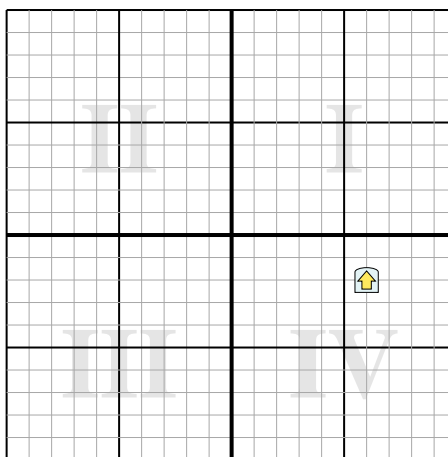
Answers

1. _____
2. _____
3. _____
4. _____

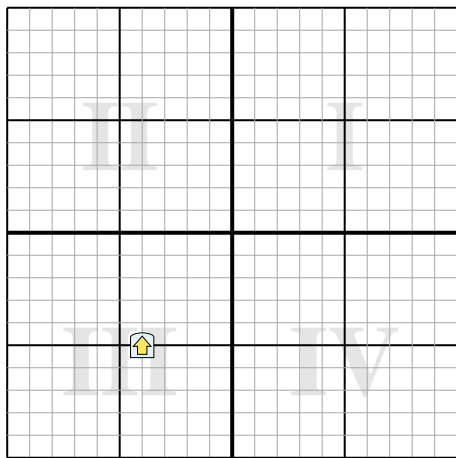
- 1) Rotate the shape -53° around the point (0,0).



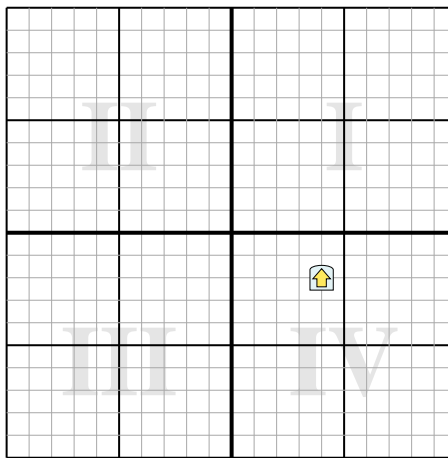
- 2) Rotate the shape 235° around the point (0,0).



- 3) Rotate the shape 37° around the point (0,0).



- 4) Rotate the shape -129° around the point (0,0).





Rotate each shape. Answer as the new coordinates.

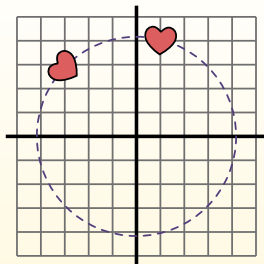
θ = Angle of Rotation

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°.

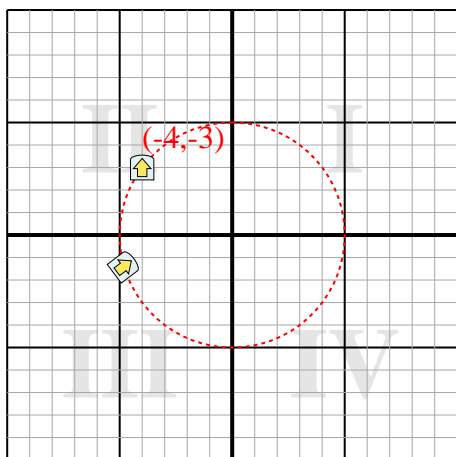


1. $x1 = 1 \times \cos(60) - 4 \times \sin(60)$
 $y1 = 1 \times \sin(60) + 4 \times \cos(60)$
2. $x1 = 1 \times 0.5 - 4 \times 0.87$
 $y1 = 1 \times 0.87 + 4 \times 0.5$
3. $x1 = 0.5 - 3.48$
 $y1 = 0.87 + 2$
4. $x1 = -2.98$
 $y1 = 2.87$
5. Looking at shape, we can see that rotated 60° it is at (-2.98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

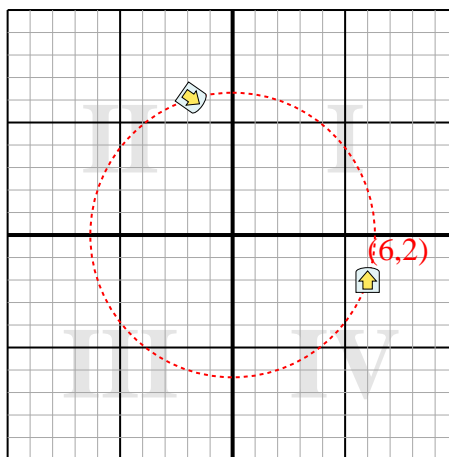
Answers

1. **(-4.8,-1.4)**
2. **(-1.8,6.1)**
3. **(-6.2,-1.6)**
4. **(-1,4.4)**

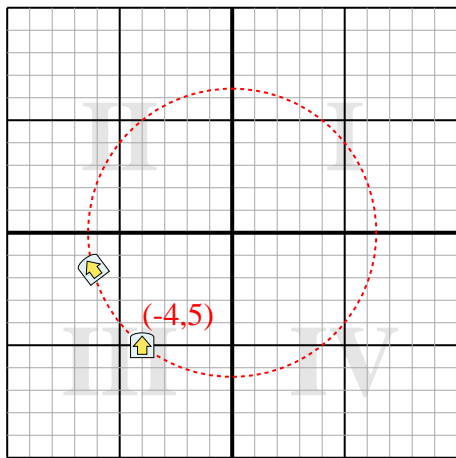
- 1) Rotate the shape -53° around the point (0,0).



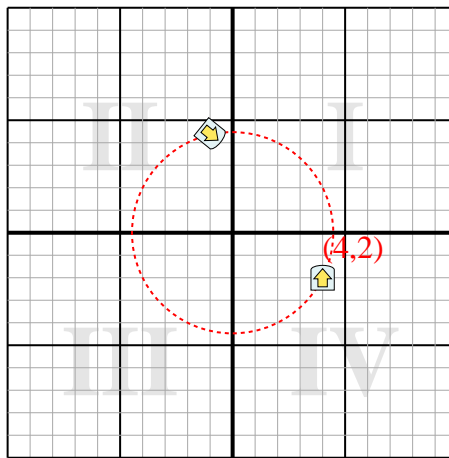
- 2) Rotate the shape 235° around the point (0,0).



- 3) Rotate the shape 37° around the point (0,0).



- 4) Rotate the shape -129° around the point (0,0).





Rotate each shape. Answer as the new coordinates.

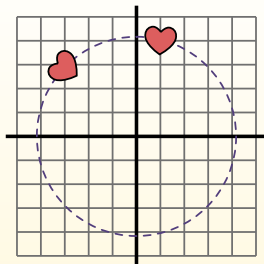
θ = Angle of Rotation

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°.

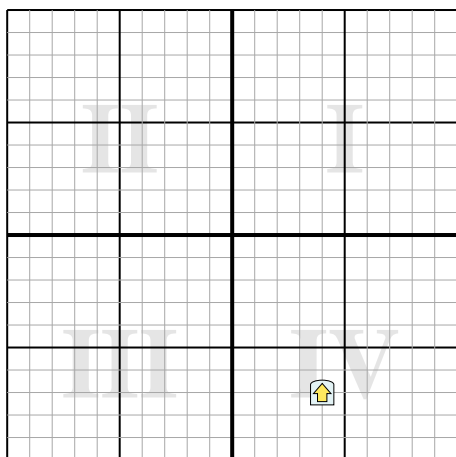


1. $x1 = 1 \times \cos(60) - 4 \times \sin(60)$
 $y1 = 1 \times \sin(60) + 4 \times \cos(60)$
2. $x1 = 1 \times 0.5 - 4 \times 0.87$
 $y1 = 1 \times 0.87 + 4 \times 0.5$
3. $x1 = 0.5 - 3.48$
 $y1 = 0.87 + 2$
4. $x1 = -2.98$
 $y1 = 2.87$
5. Looking at shape, we can see that rotated 60° it is at (-2.98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

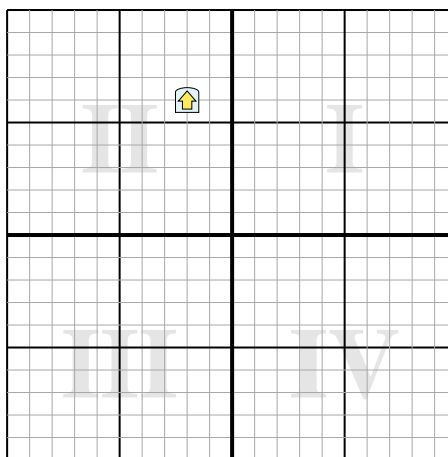
Answers

1. _____
2. _____
3. _____
4. _____

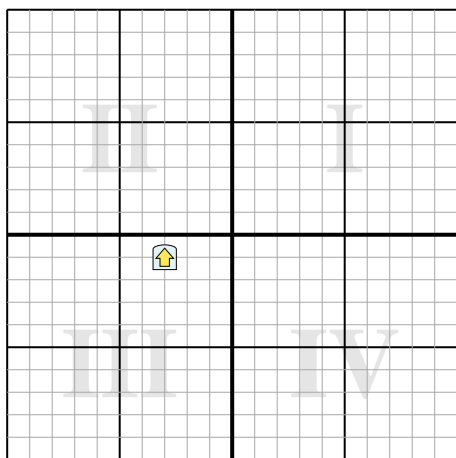
- 1) Rotate the shape -91° around the point (0,0).



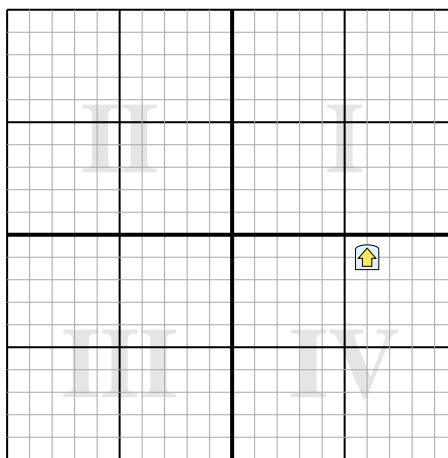
- 2) Rotate the shape -189° around the point (0,0).



- 3) Rotate the shape -140° around the point (0,0).



- 4) Rotate the shape 202° around the point (0,0).





Rotate each shape. Answer as the new coordinates.

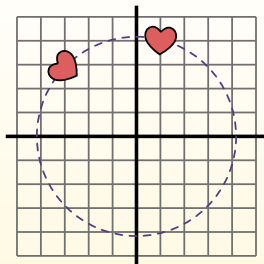
θ = Angle of Rotation

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°.

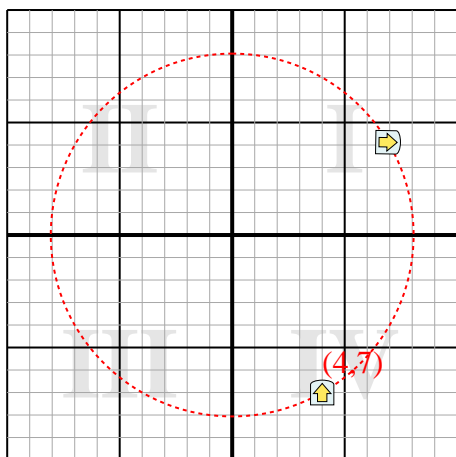


1. $x1 = 1 \times \cos(60) - 4 \times \sin(60)$
 $y1 = 1 \times \sin(60) + 4 \times \cos(60)$
2. $x1 = 1 \times 0.5 - 4 \times 0.87$
 $y1 = 1 \times 0.87 + 4 \times 0.5$
3. $x1 = 0.5 - 3.48$
 $y1 = 0.87 + 2$
4. $x1 = -2.98$
 $y1 = 2.87$
5. Looking at shape, we can see that rotated 60° it is at (-2.98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

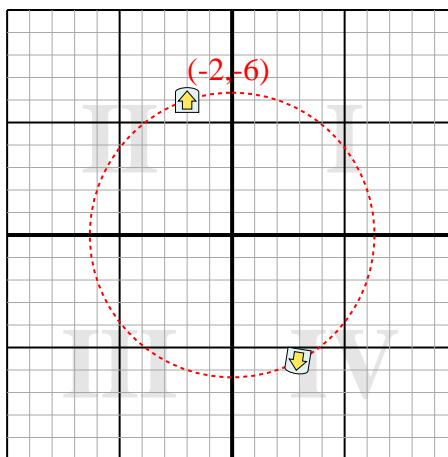
Answers

1. (6.9,4.1)
2. (2.9,-5.6)
3. (2.9,-1.2)
4. (-5.2,3.2)

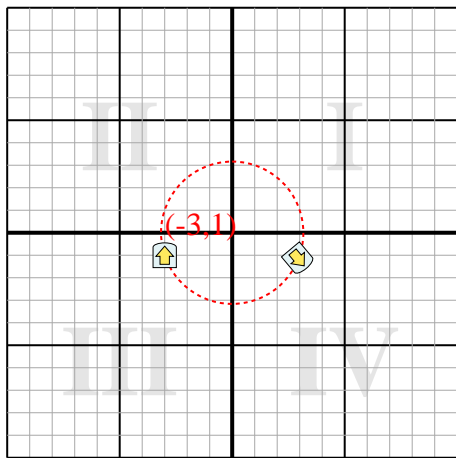
- 1) Rotate the shape -91° around the point (0,0).



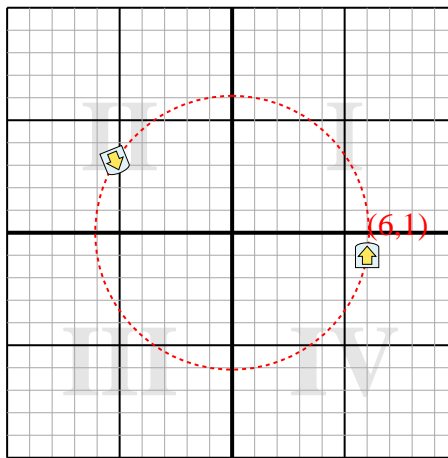
- 2) Rotate the shape -189° around the point (0,0).



- 3) Rotate the shape -140° around the point (0,0).



- 4) Rotate the shape 202° around the point (0,0).





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°.

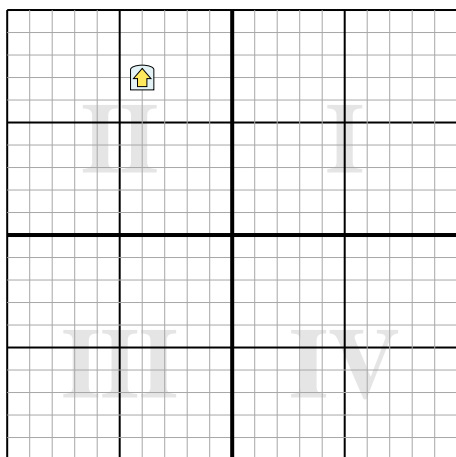


1. $x1 = 1 \times \cos(60) - 4 \times \sin(60)$
 $y1 = 1 \times \sin(60) + 4 \times \cos(60)$
2. $x1 = 1 \times 0.5 - 4 \times 0.87$
 $y1 = 1 \times 0.87 + 4 \times 0.5$
3. $x1 = 0.5 - 3.48$
 $y1 = 0.87 + 2$
4. $x1 = -2.98$
 $y1 = 2.87$
5. Looking at shape, we can see that rotated 60° it is at (-2.98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

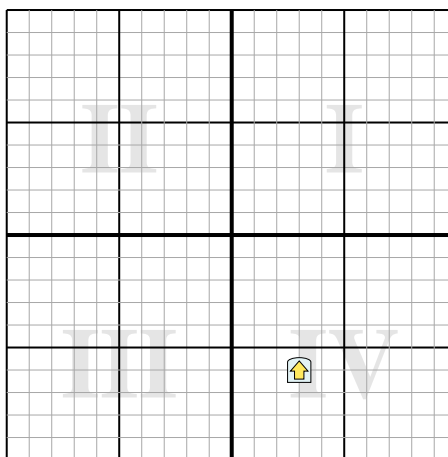
Answers

1. _____
2. _____
3. _____
4. _____

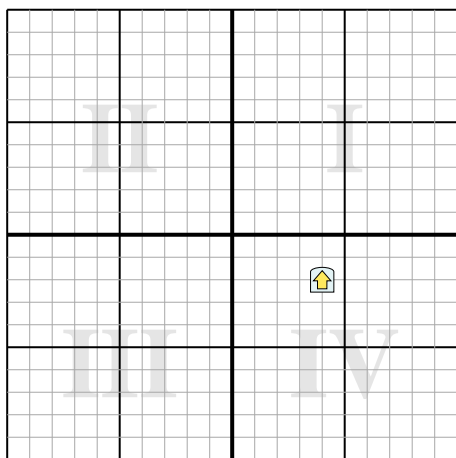
- 1) Rotate the shape 91° around the point (0,0).



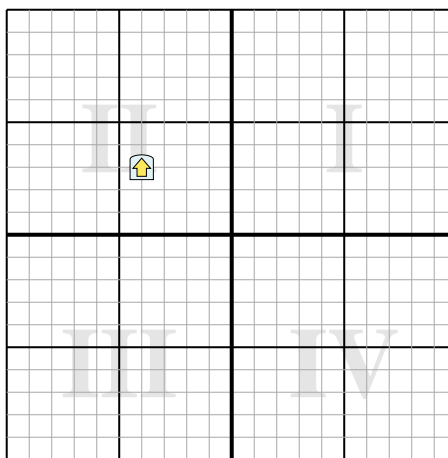
- 2) Rotate the shape -105° around the point (0,0).



- 3) Rotate the shape 248° around the point (0,0).



- 4) Rotate the shape 140° around the point (0,0).





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°.

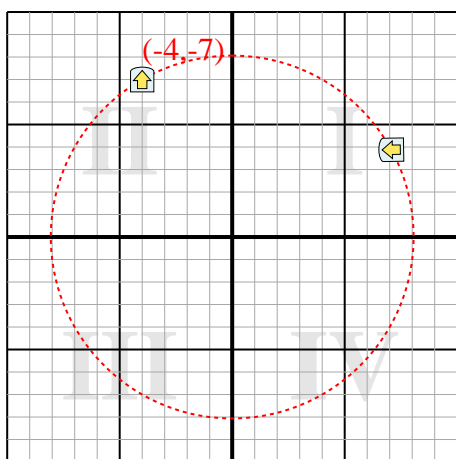


1. $x1 = 1 \times \cos(60) - 4 \times \sin(60)$
 $y1 = 1 \times \sin(60) + 4 \times \cos(60)$
2. $x1 = 1 \times 0.5 - 4 \times 0.87$
 $y1 = 1 \times 0.87 + 4 \times 0.5$
3. $x1 = 0.5 - 3.48$
 $y1 = 0.87 + 2$
4. $x1 = -2.98$
 $y1 = 2.87$
5. Looking at shape, we can see that rotated 60° it is at (-2.98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

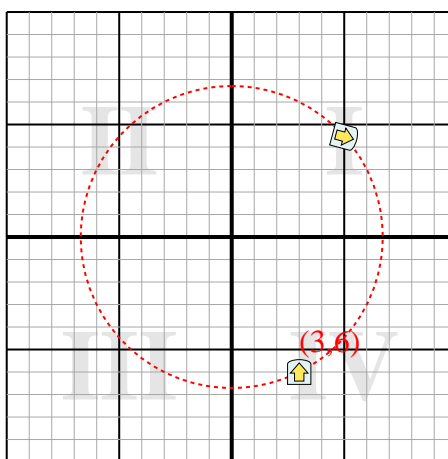
Answers

1. **(7.1,3.9)**
2. **(5,4.5)**
3. **(0.4,4.5)**
4. **(5,0.3)**

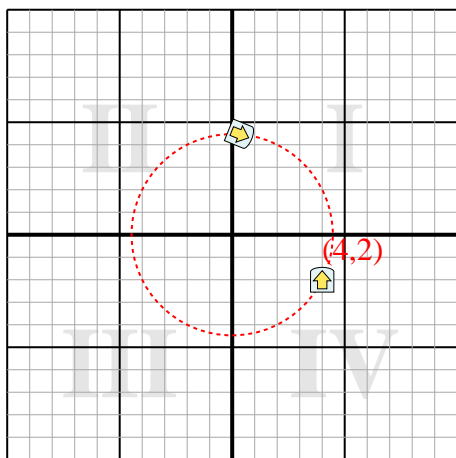
- 1) Rotate the shape 91° around the point (0,0).



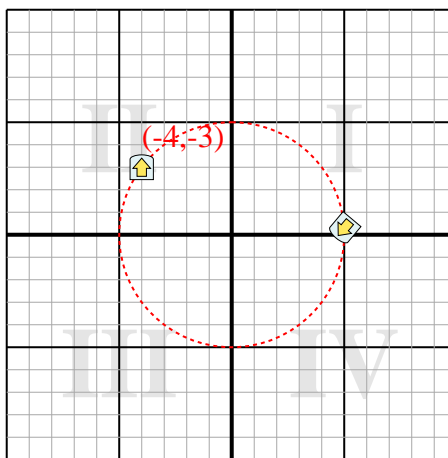
- 2) Rotate the shape -105° around the point (0,0).



- 3) Rotate the shape 248° around the point (0,0).



- 4) Rotate the shape 140° around the point (0,0).





Rotate each shape. Answer as the new coordinates.

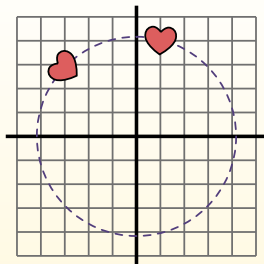
θ = Angle of Rotation

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°.

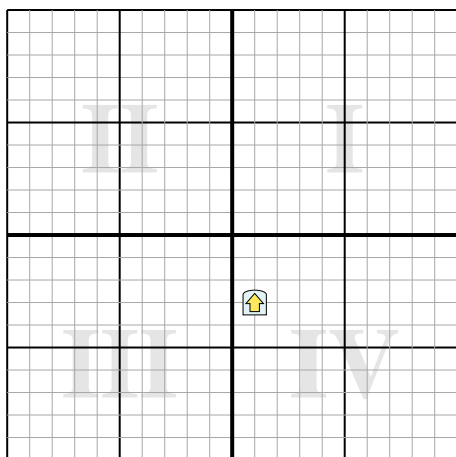


1. $x1 = 1 \times \cos(60) - 4 \times \sin(60)$
 $y1 = 1 \times \sin(60) + 4 \times \cos(60)$
2. $x1 = 1 \times 0.5 - 4 \times 0.87$
 $y1 = 1 \times 0.87 + 4 \times 0.5$
3. $x1 = 0.5 - 3.48$
 $y1 = 0.87 + 2$
4. $x1 = -2.98$
 $y1 = 2.87$
5. Looking at shape, we can see that rotated 60° it is at (-2.98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

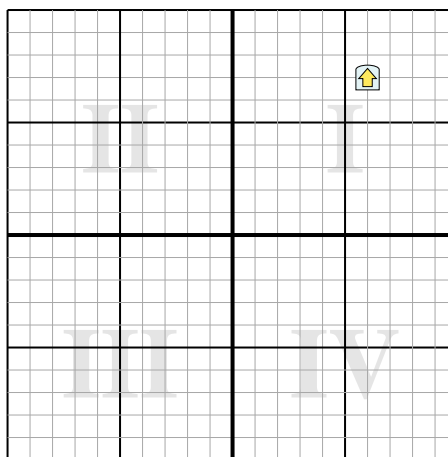
Answers

1. _____
2. _____
3. _____
4. _____

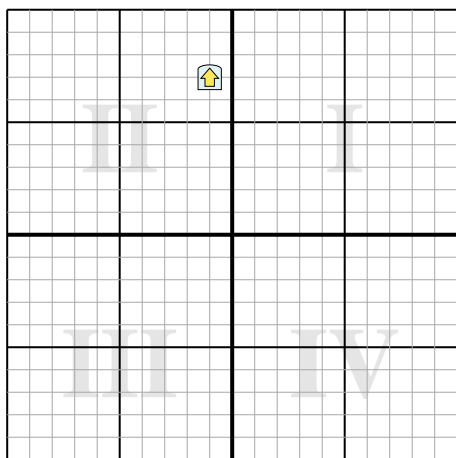
- 1) Rotate the shape 255° around the point (0,0).



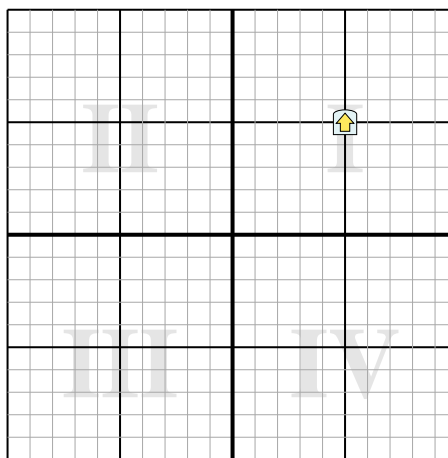
- 2) Rotate the shape 95° around the point (0,0).



- 3) Rotate the shape -55° around the point (0,0).



- 4) Rotate the shape -34° around the point (0,0).





Rotate each shape. Answer as the new coordinates.

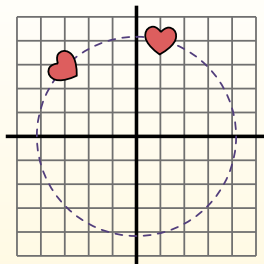
θ = Angle of Rotation

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

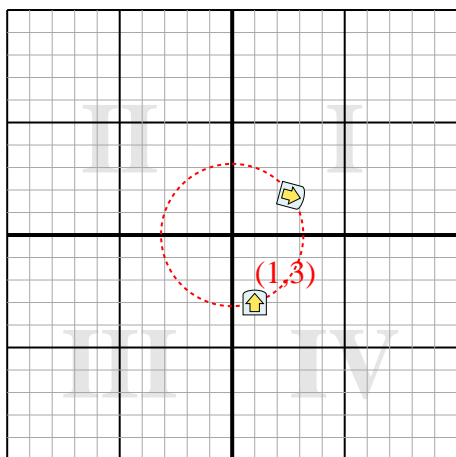
1. **(2.6,1.7)**

2. **(6.5,-6.6)**

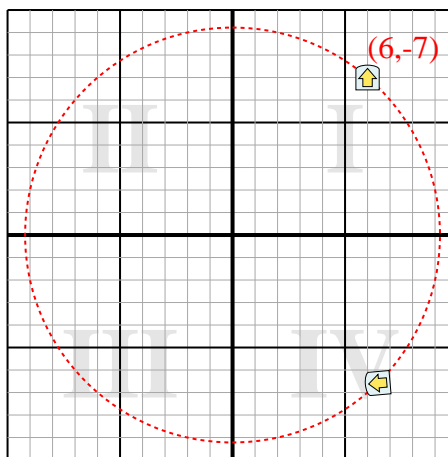
3. **(-6.3,3.2)**

4. **(1.3,6.9)**

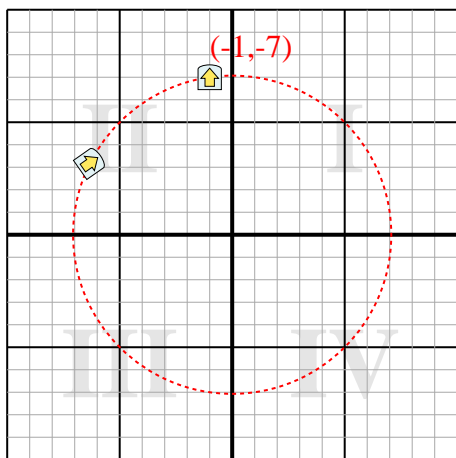
- 1) Rotate the shape 255° around the point (0,0).



- 2) Rotate the shape 95° around the point (0,0).



- 3) Rotate the shape -55° around the point (0,0).



- 4) Rotate the shape -34° around the point (0,0).

