\[ \theta = \text{Angle of Rotation} \]

**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). Let’s 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 the shape, we can see that rotated 60° it is at (-2.98, 2.87).

1) Rotate the shape 314° around the point (0,0).

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

3) Rotate the shape 124° around the point (0,0).

4) Rotate the shape -138° around the point (0,0).
θ = Angle of Rotation

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Answers

1. (-0.9, -9.2)
2. (5.8, -2.7)
3. (4.1, 6.4)
4. (1.3, -2.9)