

rotate 30 degrees



Input interpretation:

rotation

angle	$30^\circ = \frac{\pi}{6}$ radians (counterclockwise)
center	{0, 0}

Rotation matrix:

$$\frac{\sqrt{3}}{2} \quad | \quad -\frac{1}{2} \quad | \quad \frac{1}{2} \quad | \quad \frac{\sqrt{3}}{2}$$

Transformation:

$$\{x, y\} \rightarrow \left\{ \frac{\sqrt{3}}{2}x - \frac{y}{2}, \frac{x}{2} + \frac{\sqrt{3}}{2}y \right\}$$

Matrix form:

$$\begin{pmatrix} x \\ y \end{pmatrix} \rightarrow \begin{pmatrix} \frac{\sqrt{3}}{2} & -\frac{1}{2} \\ \frac{1}{2} & \frac{\sqrt{3}}{2} \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix}$$

Wolfram|Alpha : rotate 30 degrees

Visual representation:

