

How to rotate a 2D point

In 2-D, the 2×2 matrix is very simple. If you want to rotate a column vector v by t degrees using matrix M , use

$$M = \begin{Bmatrix} \cos t & -\sin t \\ \sin t & \cos t \end{Bmatrix}$$

in $M * v$.

If you have a row vector, use the transpose of M (turn rows into columns and vice versa). If you want to combine rotations, in 2-D you can just add their angles, but in higher dimensions you must multiply their matrices.

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