Question For Tara

Joe Puccio

Today

Finding the matrix equivalent of a Linear Transformation

Let T_θ be the transform that defines the rotation of a vector $\theta°$ counterclockwise.

Let $\vec{e}_1$ and $\vec{e}_2$ be the unit basis vectors $\begin{bmatrix} 1 \\ 0 \end{bmatrix}$ and $\begin{bmatrix} 0 \\ 1 \end{bmatrix}$ respectively.

It was said in class that:

$$T_\theta(\vec{e}_1) = \begin{bmatrix} \cos(\theta) \\ \sin(\theta) \end{bmatrix}$$

which can also be expressed in this way:

$$\mathbf{A} \times \vec{e}_1 = \begin{bmatrix} \cos(\theta) \\ \sin(\theta) \end{bmatrix}$$

where $\mathbf{A}$ is the matrix of the transform T_θ.

Never mind. I think I understand.