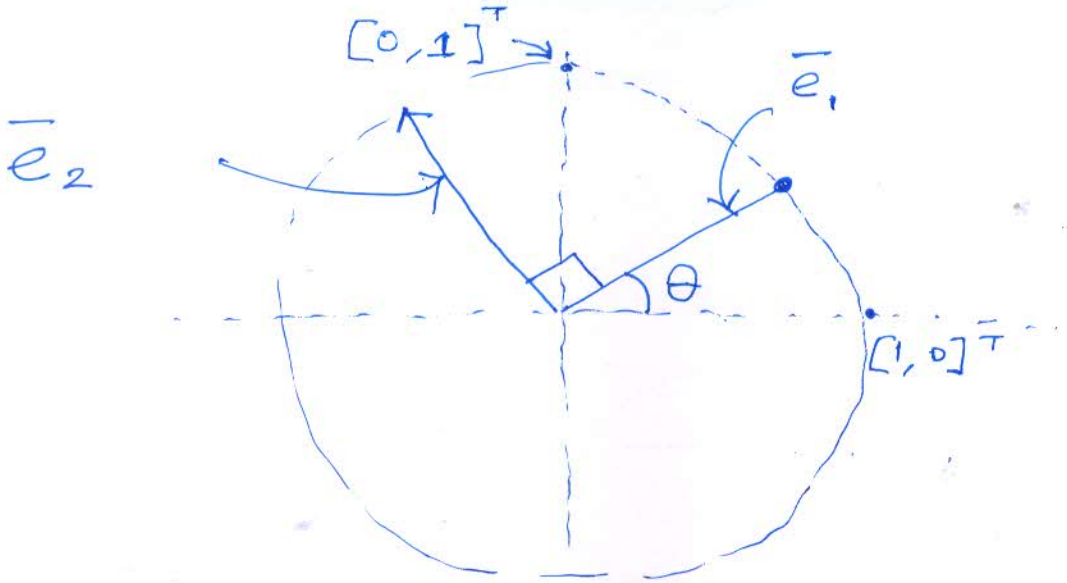
Homework

Consider two basis vectors shown below:



$\bar{e}_1$ and $\bar{e}_2$ are orthogonal to each other and $\bar{e}_1$ makes an angle θ with respect to $\begin{bmatrix}1\\0\end{bmatrix}$.

When a vector $\bar{c}$ makes an angle ϕ with respect to $\begin{bmatrix}1\\0\end{bmatrix}$, evaluate $\bar{v} = E\,\bar{c}$

→ Using linear superposition of columns of the co-ordinate system $E = [\bar{e}_1, \bar{e}_2]_{2\times 2}$

→ By dot-products of the rows of E with $\bar{c}$.

Provide an expression of $\bar{v}$ as function of ϕ & θ.

What is $\bar{v}$ when $\phi = \theta$? when $\phi = \theta + \frac{\pi}{4}$?