

2021.09.06

EC4214

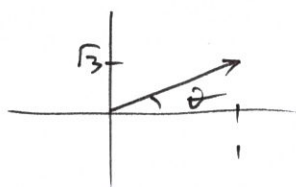
1. An electric field vector is described as $\mathbf{E} = E_0(\mathbf{i} - i\mathbf{j})e^{i(kz - \omega t)}$. What is the polarization of the field? Hint: Standing at $z=0$, when viewed against the propagation direction for $t > 0$.
2. Describe the type of polarization of the wave given by $\begin{bmatrix} 1 \\ \sqrt{3} \end{bmatrix}$. Hint: angle from x-axis.

Solution)

1. In vector notation,

$\frac{1}{\sqrt{2}} \begin{bmatrix} 1 \\ -i \end{bmatrix} \rightarrow$ Right circularly polarized.

2. Linearly polarized with $\theta = 60^\circ$.



$$\tan \theta = \sqrt{3}, \quad \theta = 60^\circ.$$