

Equation of Unit Vector

1 12th Maths - Chapter 10

This is Problem-5 from Exercise 5.5

1. Find the value of x for which $x(\hat{i} + \hat{j} + \hat{k})$ is a unit vector

2 Solution

Given points are

$$\mathbf{x} = x \begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix} \quad (1)$$

unit vector formula is

$$\|\mathbf{x}\| = 1 \quad (2)$$

where

$$x\sqrt{3} = 1 \quad (3)$$

$$\implies x = \frac{1}{\sqrt{3}} \quad (4)$$