

Assignment 1

Adarsh Srivastava
AIMTECH14008

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1 Question 26, Point and Vectors

Find the value of x for which $x[1, 1, 1]$ is a unit vector.

2 Solution

Multiply the scalar value with the given vector.

$$x[1, 1, 1] = [x, x, x]$$

Calculate the magnitude of the resultant vector.

$$\sqrt{x^2 + x^2 + x^2} = 1 \text{ (Magnitude of unit vector is 1)}$$

Solve for x .

$$\sqrt{3x^2} = 1$$

$$x = 1/\sqrt{3} \text{ and } -1/\sqrt{3}$$