

# Assignment 1

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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

Step 1: Multiply the scalar value with the given vector.

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

Step 2: Calculate the magnitude of the resultant vector.

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

Step 3: Solve for  $x$ .

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

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