

# 1.1.9.7

EE24BTECH11032 - John Bobby

**Question:** The distance of the point  $(-6, 8)$  from the origin is

**Solution:** The length of a vector is defined as

$$\|x\| = \sqrt{x^T x} \quad (0.1)$$

$$x = \begin{pmatrix} -6 \\ 8 \end{pmatrix} \quad (0.2)$$

$$x^T x = (-6, 8) \begin{pmatrix} -6 \\ 8 \end{pmatrix} = 100 \quad (0.3)$$

$$\|x\| = \sqrt{100} = 10 \quad (0.4)$$

Thus the distance of the point  $(6, -8)$  from the origin is 10 units.

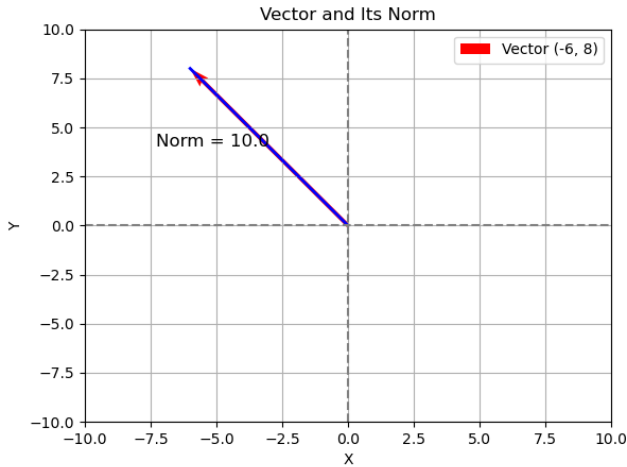


Fig. 0.1: Plot of point  $(6, -8)$