1.1.9.7

EE24BTECH11032 - John Bobby

Question: The distance of the point $(-6, 8)$ from the orgin is
Solution: The length of a vector is defined as

Variable	Description
$\mathbf{A}(-6, 8)$	coordinates of point
$\mathbf{O}(0, 0)$	coordinates of orgin

TABLE 0: Input Parameters

$$\|x\| = \sqrt{x^T x} \tag{0.1}$$

$$A = \begin{pmatrix} -6 \\ 8 \end{pmatrix} \tag{0.2}$$

$$A^T A = \begin{pmatrix} -6, 8 \end{pmatrix} \begin{pmatrix} -6 \\ 8 \end{pmatrix} = 6^2 = 8^2 = 100 \tag{0.3}$$

$$\|A\| = \sqrt{100} = 10 \tag{0.4}$$

$\therefore$ Length of line segment OA is 10 units

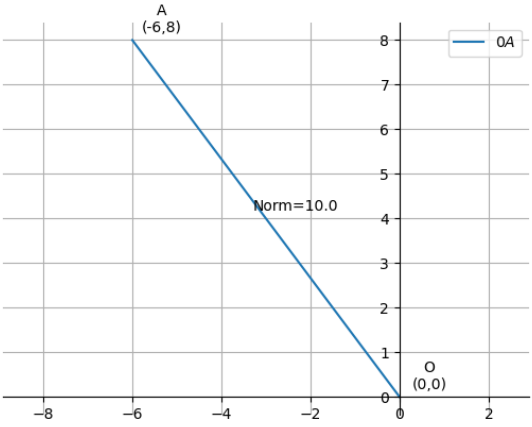

Fig. 0.1: Plot of point $(6, -8)$