

# 1-1.8-15

EE24BTECH11022 - Eshan Sharma

**Question:**

The distance between the points  $(0, 5)$  and  $(-5, 0)$  is

**Solution:**

Symbol	Value	Description
<b>A</b>	$\begin{pmatrix} 0 \\ 5 \end{pmatrix}$	First point
<b>B</b>	$\begin{pmatrix} -5 \\ 0 \end{pmatrix}$	Second point

TABLE 0: Variables Used

Distance between A and B,  $d$  is

$$\mathbf{A} - \mathbf{B} = \begin{pmatrix} 0 \\ 5 \end{pmatrix} - \begin{pmatrix} -5 \\ 0 \end{pmatrix} = \begin{pmatrix} 5 \\ 5 \end{pmatrix} \quad (0.1)$$

$$(\mathbf{A} - \mathbf{B})^T (\mathbf{A} - \mathbf{B}) = 50 \quad (0.2)$$

$$d = \|\mathbf{A} - \mathbf{B}\| = \sqrt{50} \quad (0.3)$$

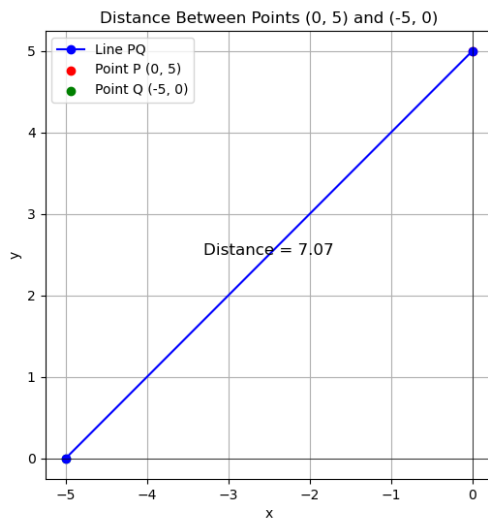


Fig. 0.1: Circle with Diameter  $AB$  and Center  $O(-2, 2)$