## 1.9.10

## EE24BTECH11020 - Ellanti Rohith

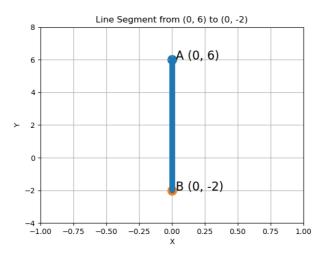
**Question**: The distance between the points  $A \begin{pmatrix} 0 \\ 6 \end{pmatrix}$  and  $B \begin{pmatrix} 0 \\ -2 \end{pmatrix}$  is \_\_\_\_\_

**Solution:** We know that distance between two points **A** and **B** is  $\sqrt{(A-B)^{\top}(A-B)}$ 

$$\therefore \mathbf{A} - \mathbf{B} = \begin{pmatrix} 0 \\ 6 \end{pmatrix} - \begin{pmatrix} 0 \\ -2 \end{pmatrix} = \begin{pmatrix} 0 \\ 8 \end{pmatrix}, \tag{0.1}$$

$$\sqrt{(\mathbf{A} - \mathbf{B})^{\top}(\mathbf{A} - \mathbf{B})} = \sqrt{\left(0 \quad 8\right) \begin{pmatrix} 0 \\ 8 \end{pmatrix}} = \sqrt{0 + 64} = 8 \tag{0.2}$$

Thus, the desired distance is **A** and **B** is 8 units.



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