

# SM5083

## Assignment Number 01

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### 1. CHAPTER II Ex-2 Q.1 II

- 1.1. Find the distance between the following pair of points (11,16) and (23,21).

**Solution:**

let

$$\mathbf{A} = \begin{pmatrix} 11 \\ 16 \end{pmatrix}, \mathbf{B} = \begin{pmatrix} 23 \\ 21 \end{pmatrix} \quad (1.1.1)$$

$$\mathbf{B} - \mathbf{A} = \begin{pmatrix} 12 \\ 5 \end{pmatrix} \quad (1.1.2)$$

let normalisation of vector  $A$  and vector  $B$ =

$$\|\mathbf{B} - \mathbf{A}\|^2 = (\mathbf{B} - \mathbf{A})^\top (\mathbf{B} - \mathbf{A}) = \begin{pmatrix} 12 & 5 \end{pmatrix} \begin{pmatrix} 12 \\ 5 \end{pmatrix} \quad (1.1.3)$$

$$\|\mathbf{B} - \mathbf{A}\| = \sqrt{(12^2 + 5^2)} \quad (1.1.4)$$

$$\|\mathbf{B} - \mathbf{A}\| = 13$$