

# Assignment No.2

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Download all python codes from

<https://github.com/Abhishek7008/Assignment-2.git>

and latex-tikz codes from

<https://github.com/Abhishek7008/Assignment-2.git>

Question taken from

[https://github.com/gadepall/papers/blob/master/classics/2d-coordinate/elementsofcoordi00lone\\_bw.pdf](https://github.com/gadepall/papers/blob/master/classics/2d-coordinate/elementsofcoordi00lone_bw.pdf) Example 1.1

## 1 EXAMPLE.1.1

Find the distance between the following pair of points (2,3) and (5,7).

## 2 SOLUTION

Let

$$\mathbf{A} = \begin{pmatrix} 2 \\ 3 \end{pmatrix} \quad (2.0.1)$$

$$\mathbf{B} = \begin{pmatrix} 5 \\ 7 \end{pmatrix} \quad (2.0.2)$$

The distance  $d$  between  $\mathbf{A}$  and  $\mathbf{B}$  is given by

$$\|\mathbf{B} - \mathbf{A}\| \quad (2.0.3)$$

$$\Rightarrow \left\| \begin{pmatrix} 5-2 \\ 7-3 \end{pmatrix} \right\| = \left\| \begin{pmatrix} 3 \\ 4 \end{pmatrix} \right\| \quad (2.0.4)$$

$$\Rightarrow \left\| \begin{pmatrix} 3 \\ 4 \end{pmatrix} \right\| = \sqrt{3^2 + 4^2} \quad (2.0.5)$$

$$= \sqrt{9 + 16} \quad (2.0.6)$$

$$= \sqrt{25} = 5 \quad (2.0.7)$$

The Distance between two points is 5.