Assignment-02

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MD/2020/710

Download all python codes from

https://github.com/suyogtangade/ASSIGNMENT2.git

and latex-tikz codes from

https://github.com/suyogtangade/ASSIGNMENT2.git

Question taken from

https://github.com/gadepall/papers/blob/master/classics/2d−coordinate/elementsofcoordi00lone_bw.pdf

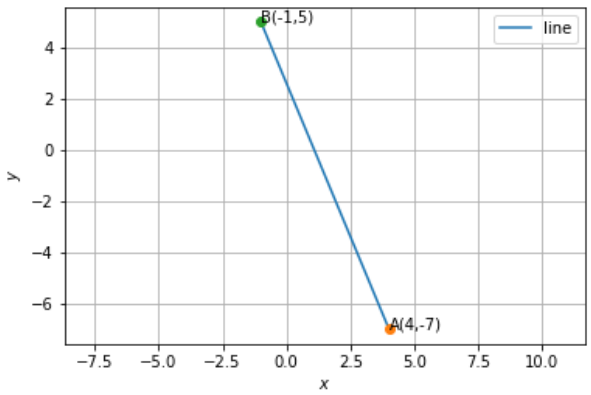

Fig. 2.1: Graphical Solution

1 Vector2 Example.1.2

Find the distance between the following pair of points (4,-7) and (-1,5).

2 Solution

Lets Consider

$$\mathbf{A} = \begin{pmatrix} 4 \\ -7 \end{pmatrix} \tag{2.0.1}$$

$$\mathbf{B} = \begin{pmatrix} -1 \\ 5 \end{pmatrix} \tag{2.0.2}$$

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

$$\|\mathbf{B} - \mathbf{A}\| \tag{2.0.3}$$

$$= \left\| \begin{pmatrix} (-1) - 4 \\ 5 - (-7) \end{pmatrix} \right\| \tag{2.0.4}$$

$$= \left\| \begin{pmatrix} -5 \\ 12 \end{pmatrix} \right\| \tag{2.0.5}$$

$$= \sqrt{-5^2 + 12^2} \tag{2.0.6}$$

$$= \sqrt{25 + 144} \tag{2.0.7}$$

$$= \sqrt{169} = 13 \tag{2.0.8}$$

$$\tag{2.0.9}$$

The Distance between two points is 13.
∴ This figure verifies that distance between two points is 13.