Assignment - Vector

Surajit Sarkar

भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

CONTENTS

I. PROBLEM

Find the distance between the point(0,0) and (36,15).Can you now find the distance between the two towns A and B discussed in Section 7.2

II. SOLUTION

The distance betwen the points A and B is given

$$\mathbf{A} = \begin{pmatrix} 0 & 0 \end{pmatrix}$$
$$\mathbf{B} = \begin{pmatrix} 36 & 15 \end{pmatrix}$$
$$\|\mathbf{A} - \mathbf{B}\|$$

where

$$\mathbf{A} - \mathbf{B} = \begin{pmatrix} -36 \\ -15 \end{pmatrix}$$

$$\mathbf{d} = \sqrt{(\mathbf{A} - \mathbf{B})^T (\mathbf{A} - \mathbf{B})}$$

$$\mathbf{d} = \sqrt{\begin{pmatrix} -36 \\ -15 \end{pmatrix} \begin{pmatrix} -36 & -15 \end{pmatrix}}$$

$$\mathbf{d} = \sqrt{1296 + 225}$$
$$\mathbf{d} = \sqrt{1521}$$
$$\mathbf{d} = 39$$

III. CODE LINK

https://github.com/sssurajit/fwc/blob/main/Vector/
     Codes/vector.py

Execute the code by using the command
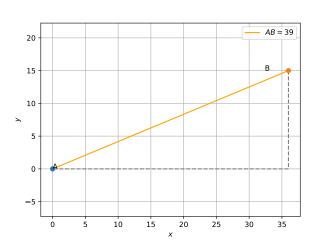**python3 vector.py**

IV. FIGURE

Fig. 1