



Assignment - Vector

Surajit Sarkar

CONTENTS

I	Problem	1
II	Solution	1
III	Code Link	1
IV	Figure	1

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 between 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

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

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

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

$$d = \sqrt{1296 + 225}$$

$$d = \sqrt{1521}$$

$$d = 39$$

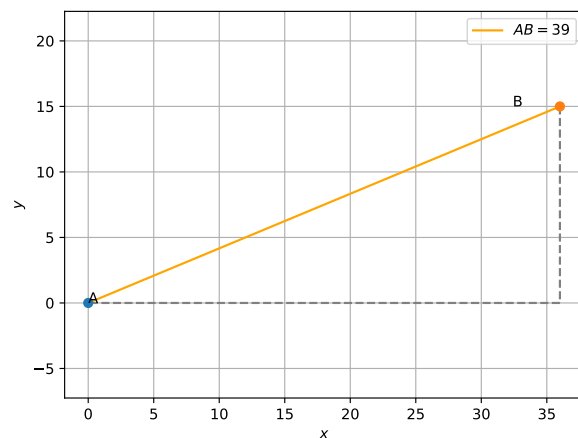


Fig. 1

III. CODE LINK

<https://github.com/sssurajit/fwc/blob/main/vectors/10.7.1.2/codes/vector.py>

Execute the code by using the command
python3 vector.py

IV. FIGURE