Assignment 2

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Find Python Codes from below link

https://github.com/HimaMadhu/internship/blob/main/Assignment2/Assignment2.py

and Latex codes from below link

https://github.com/HimaMadhu/internship/blob/main/Assignment2/Assignment2.tex

1 Examples 1

1.1 Question 19

The line joining the points (1, -2) and (-3, 4) is trisected; find the coordinates of the points of trisection.

1.2 Solution

Let the T_1 and T_2 be coordinates trisecting the line AB

$$\mathbf{T}_1 = \frac{\mathbf{B} + 2\mathbf{A}}{3} \tag{1.2.1}$$

$$\mathbf{T}_2 = \frac{2\mathbf{B} + \mathbf{A}}{3} \tag{1.2.2}$$

Let $\mathbf{A} = \begin{pmatrix} 1 \\ -2 \end{pmatrix}, \mathbf{B} = \begin{pmatrix} -3 \\ 4 \end{pmatrix}$

From (1.2.1)

$$\mathbf{T}_1 = \frac{\begin{pmatrix} -3 \\ 4 \end{pmatrix} + 2\begin{pmatrix} 1 \\ -2 \end{pmatrix}}{3} \tag{1.2.3}$$

$$= \frac{\begin{pmatrix} -3 \\ 4 \end{pmatrix} + \begin{pmatrix} 2 \\ -4 \end{pmatrix}}{3} \tag{1.2.4}$$

$$\mathbf{T}_1 = \begin{pmatrix} \frac{-1}{3} \\ 0 \end{pmatrix} = \begin{pmatrix} -0.33 \\ 0 \end{pmatrix} \tag{1.2.5}$$

From (1.2.2)

$$\mathbf{T}_2 = \frac{2\begin{pmatrix} -3 \\ 4 \end{pmatrix} + \begin{pmatrix} 1 \\ -2 \end{pmatrix}}{3} \tag{1.2.6}$$

$$= \frac{\begin{pmatrix} -6 \\ 8 \end{pmatrix} + \begin{pmatrix} 1 \\ -2 \end{pmatrix}}{3} \tag{1.2.7}$$

$$\mathbf{T}_2 = \begin{pmatrix} \frac{-5}{3} \\ 2 \end{pmatrix} = \begin{pmatrix} -1.66 \\ 2 \end{pmatrix} \tag{1.2.8}$$

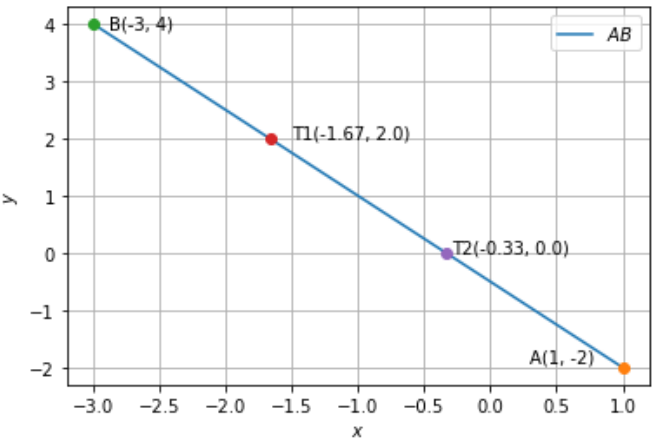

Fig. 0