Assignment 7

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Find Python Codes from below link

https://github.com/AnilMondedla/Assignment_7

and latex-tikz codes from

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1 Examples 1

1.1 Question 20

The line joining the points (-6, 8) and (8, -6) is divided into four equal parts; find the coordinates of the points of section.

1.2 Solution

Let the $\mathbf{T}_1$,$\mathbf{T}_2$ and $\mathbf{T}_3$ be coordinates dividing into four equal parts of the line $\mathbf{A}$ joining $\mathbf{B}$

$$\mathbf{T}_1 = \frac{3\mathbf{B}+\mathbf{A}}{4} \tag{1.2.1}$$

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

$$\mathbf{T}_3 = \frac{\mathbf{B}+3\mathbf{A}}{4} \tag{1.2.3}$$

Let $\mathbf{A} = \begin{pmatrix}-6\\8\end{pmatrix}, \mathbf{B} = \begin{pmatrix}8\\-6\end{pmatrix}$

From (1.2.1)

$$\mathbf{T}_1 = \frac{3\begin{pmatrix}8\\-6\end{pmatrix}+\begin{pmatrix}-6\\8\end{pmatrix}}{4} \tag{1.2.4}$$

$$\mathbf{T}_1 = \frac{\begin{pmatrix}24\\-18\end{pmatrix}+\begin{pmatrix}-6\\8\end{pmatrix}}{4} \tag{1.2.5}$$

$$\mathbf{T}_1 = \frac{\begin{pmatrix}18\\-10\end{pmatrix}}{4} \tag{1.2.6}$$

$$\mathbf{T}_1 = \begin{pmatrix}\frac{9}{2}\\-\frac{5}{2}\end{pmatrix} \tag{1.2.7}$$

From (1.2.3)

$$\mathbf{T}_2 = \frac{\begin{pmatrix}8\\-6\end{pmatrix}+\begin{pmatrix}-6\\8\end{pmatrix}}{2} \tag{1.2.8}$$

$$\mathbf{T}_2 = \frac{\begin{pmatrix}2\\2\end{pmatrix}}{2} \tag{1.2.9}$$

$$\mathbf{T}_2 = \begin{pmatrix}1\\1\end{pmatrix} \tag{1.2.10}$$

From (1.2.3)

$$\mathbf{T}_3 = \frac{\begin{pmatrix}8\\-6\end{pmatrix}+3\begin{pmatrix}-6\\8\end{pmatrix}}{4} \tag{1.2.11}$$

$$\mathbf{T}_3 = \frac{\begin{pmatrix}8\\-6\end{pmatrix}+\begin{pmatrix}-18\\24\end{pmatrix}}{4} \tag{1.2.12}$$

$$\mathbf{T}_3 = \frac{\begin{pmatrix}-10\\18\end{pmatrix}}{4} \tag{1.2.13}$$

$$\mathbf{T}_3 = \begin{pmatrix}-\frac{5}{2}\\\frac{9}{2}\end{pmatrix} \tag{1.2.14}$$

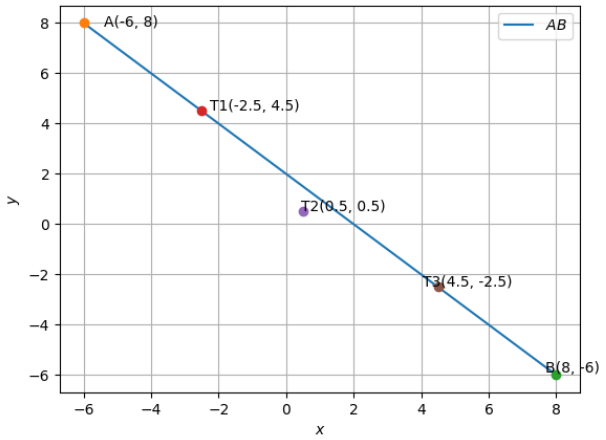

Fig. 0