

# Assignment 7

Mondedla Anil

Find Python Codes from below link

[https://github.com/AnilMondedla/Assignment\\_7](https://github.com/AnilMondedla/Assignment_7)

and latex-tikz codes from

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From (1.2.3)

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

$$\mathbf{T}_2 = \frac{\begin{pmatrix} 2 \\ 2 \end{pmatrix}}{2} \quad (1.2.9)$$

$$\mathbf{T}_2 = \begin{pmatrix} 1 \\ 1 \end{pmatrix} \quad (1.2.10)$$

## 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.

From (1.2.3)

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

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

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

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

### 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  $\mathbf{B}$

$$\mathbf{T}_1 = \frac{3\mathbf{B} + \mathbf{A}}{4} \quad (1.2.1)$$

$$\mathbf{T}_2 = \frac{\mathbf{B} + \mathbf{A}}{2} \quad (1.2.2)$$

$$\mathbf{T}_3 = \frac{\mathbf{B} + 3\mathbf{A}}{4} \quad (1.2.3)$$

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

From (1.2.1)

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

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

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

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

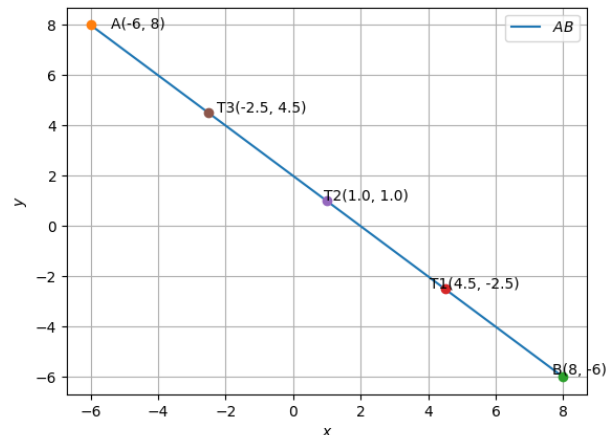


Fig. 0