# Assignment 3

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Find Python Codes from below link

https://raw.githubusercontent.com/jaisai1337/IITH/main/SU/Assignment3/code.py

and Latex codes from below link

https://raw.githubusercontent.com/jaisai1337/IITH/main/SU/Assignment3/main.tex

## 1 Examples 1

### 1.1 Question 1

Find coordinates of a point which divides the line joining the points (1, 3) and (2, 7) in the ratio 3 : 4

(1.1.1)

### 1.2 Solution

The coordinates of point P dividing the line AB in the ratio $m : n$ is given by

$$P = \frac{m\mathbf{B} + n\mathbf{A}}{m+n} \tag{1.2.1}$$

Let $\mathbf{A} = \begin{pmatrix}1\\3\end{pmatrix}, \mathbf{B} = \begin{pmatrix}2\\7\end{pmatrix}, m = 3, n = 4$

From (1.2.1)

$$= \frac{3\begin{pmatrix}2\\7\end{pmatrix} + 4\begin{pmatrix}1\\3\end{pmatrix}}{3+4} \tag{1.2.2}$$

$$= \frac{\begin{pmatrix}6\\21\end{pmatrix} + \begin{pmatrix}4\\12\end{pmatrix}}{7} \tag{1.2.3}$$

$$= \frac{\begin{pmatrix}10\\33\end{pmatrix}}{7} \tag{1.2.4}$$

$$= \begin{pmatrix}\frac{10}{7}\\\frac{33}{7}\end{pmatrix} \tag{1.2.5}$$

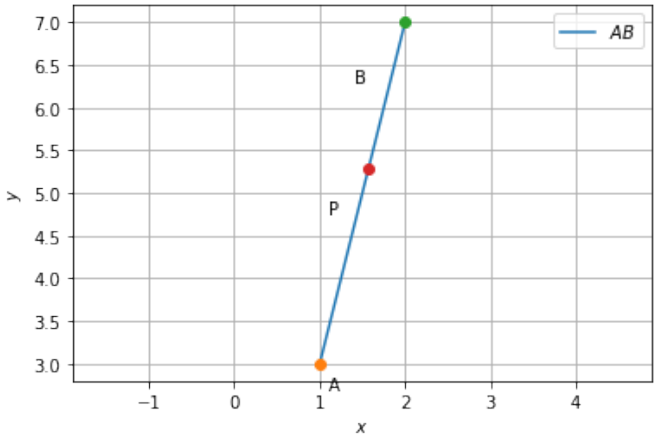


Fig. 0