Assignment 3

Jaisai Kandregula

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

$$P = \frac{m\mathbf{B} + n\mathbf{A}}{m + n} \qquad (1.2.1)$$

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)

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

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

$$= \frac{\begin{pmatrix} 10 \\ 33 \end{pmatrix}}{7} \qquad (1.2.4)$$

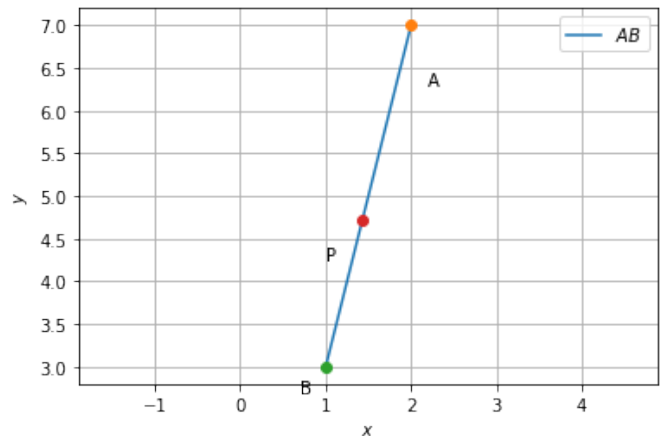$$= \begin{pmatrix} \frac{10}{7} \\ \frac{33}{7} \end{pmatrix} \qquad (1.2.5)$$

Fig. 0