Assignment 1

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Download all python codes from

https://github.com/mirhasidheek7213/InternshipIITH/tree/main/Assignment1/Codes

and latex-tikz codes from

https://github.com/mirhasidheek7213/InternshipIITH/blob/main/Assignment1/Assignment1.tex

1 Question No. 2.17

Construct $\triangle ABC$ with $BC = 7.5$, $AC = 5$ and $\angle C = 60^\circ$

2 Solution

$$Given, BC = 7.5, AC = 5, \angle C = 60^\circ \tag{2.0.1}$$

$$Let, BC = a, AC = b \tag{2.0.2}$$

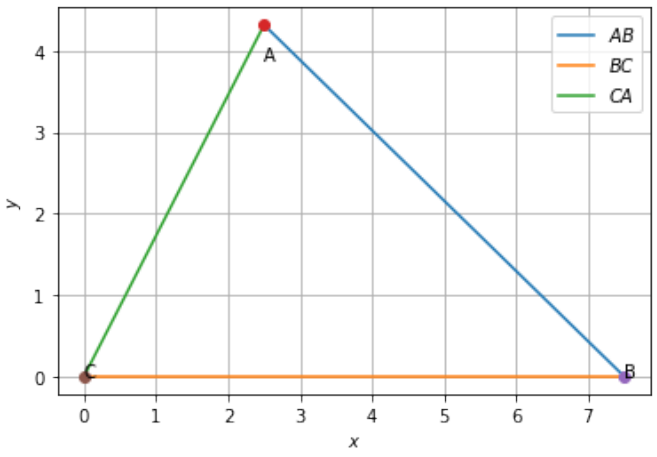

Fig. 0: The Constructed triangle

The values of A, B and C are substituted and the triangle is plotted as given above.

The vertex A can be expressed in polar coordinate form as:

$$\mathbf{A} = b\begin{pmatrix}\cos C\\ \sin C\end{pmatrix}, \mathbf{B} = \begin{pmatrix}a\\0\end{pmatrix}, \mathbf{C} = \begin{pmatrix}0\\0\end{pmatrix} \tag{2.0.3}$$

This can be written as,

$$\mathbf{A} = 5\begin{pmatrix}\cos 60\\ \sin 60\end{pmatrix} = \begin{pmatrix}2.5\\ 2.5\sqrt{3}\end{pmatrix}, \mathbf{B} = \begin{pmatrix}7.5\\0\end{pmatrix}, \mathbf{C} = \begin{pmatrix}0\\0\end{pmatrix} \tag{2.0.4}$$