ASSIGNMENT-1

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download all python codes from

https://github.com/TGURUBALAJI/Assignment−−1/upload/main

latex-tikz codes from

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1 QUESTION NO-2.19

If $AC = 7, \angle A = 60°$ and $\angle B = 50°$.Can you draw a triangle?

2 Solution

To find angle C:

$$\angle A + \angle B + \angle C = 180° \tag{2.0.1}$$
$$\angle C = 180° - 110° \tag{2.0.2}$$
$$= 70° \tag{2.0.3}$$

Now we shall find the side a by using the formula

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c} \tag{2.0.4}$$

To find side a

$$a = b\left(\frac{\sin A}{\sin B}\right) \tag{2.0.5}$$
$$= 7\left(\frac{\sin 60°}{\sin 50°}\right) \tag{2.0.6}$$
$$= 7.913611 \tag{2.0.7}$$

The vertices of $\triangle ABC$ are

$$\mathbf{C} = \begin{pmatrix}0\\0\end{pmatrix}, \mathbf{B} = a\begin{pmatrix}\cos 70°\\\sin 70°\end{pmatrix}, \mathbf{A} = \begin{pmatrix}7\\0\end{pmatrix} \tag{2.0.8}$$

Lines AB,BC,CA are then generated and plotted using these coordinates to construct $\triangle ABC$ Plot of the $\triangle ABC$:

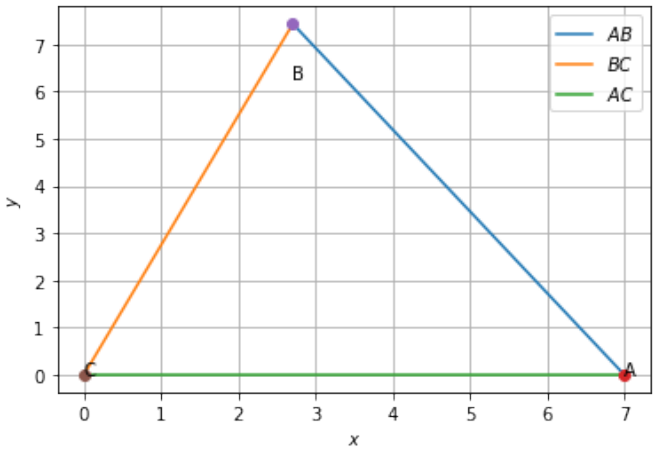

Fig. 0: $\triangle ABC$