ASSIGNMENT-1

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download all python codes from

https://github.com/Kumarbegnier/IIT−HYD−INTERNSHIP/tree/main/ASSIGNMENT_201/code

latex-tikz codes from

https://github.com/Kumarbegnier/IIT−HYD−INTERNSHIP/blob/main/ASSIGNMENT_201/Latex.tex

1 QUESTION NO-2.19

If $XY = 6, \angle X = 30°$ and $\angle Y = 100°$.Can you draw a triangle?

2 Solution

Angle Sum Property

$$\angle Z° = \angle 180° - \angle X° + \angle Y° = \angle 50° \tag{2.0.1}$$

To find the side y by using the formula

$$\frac{\sin X}{x} = \frac{\sin Y}{y} = \frac{\sin Z}{z} \tag{2.0.2}$$

written as,

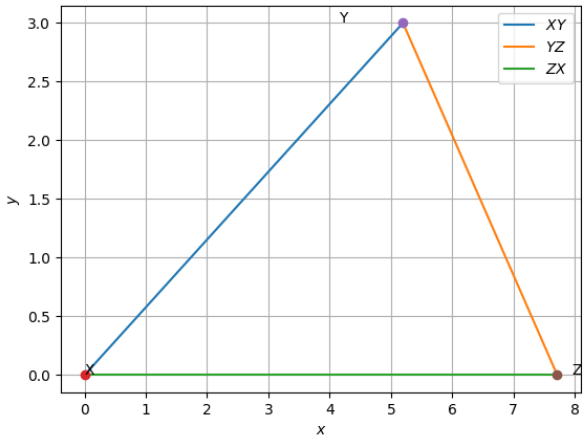

Fig. 0: Constructed Triangle

$$y = z\left(\frac{\sin Y}{\sin Z}\right) \quad = 6\left(\frac{\sin 100°}{\sin 50°}\right) = 7.7134 \tag{2.0.3}$$

The vertices of $\triangle XYZ$ are

$$\mathbf{X} = \begin{pmatrix}0\\0\end{pmatrix}, \mathbf{Y} = 6\begin{pmatrix}\cos 30°\\ \sin 30°\end{pmatrix}, \mathbf{Z} = \begin{pmatrix}7.7134\\0\end{pmatrix} \tag{2.0.4}$$

The values of X, Y and Z are substituted and the triangle is plotted as given above.