Assignment-1

NEERAJ KUMAR

Download all python codes from

https://github.com/kavyakamal66/IITH–INTERNSHIP/blob/main/Assignment%201/code1.py

and latex-tikz codes from

https://github.com/kavyakamal66/IITH–INTERNSHIP/blob/main/Assignment%201/latex1.tex

1 Question No. 2.18

Construct $\triangle XYZ$ if XY=6 $\angle X = 30°$ and $\angle Y = 100°$

2 Solution

Given XY=6, $\angle X = 30°$
and $\angle Y = 100°$

Again, we are assuming that ”D” is the point which perpendicular intersect to the XZ

XZ consist XD/p and DZ.

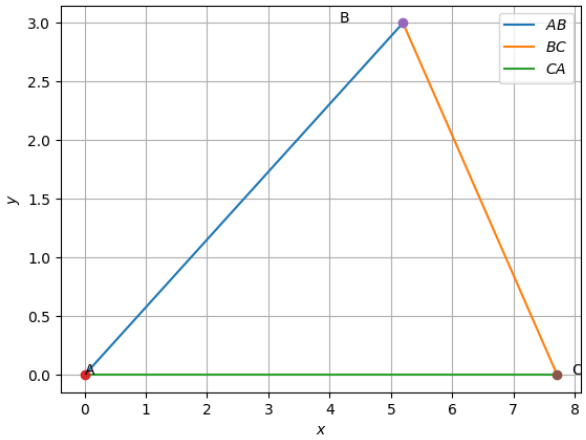

Fig. 0: OUTPUT FIGURE

The vertex X,Y and Z can be expressed in polar coordinate form as:

$$\mathbf{Y} = r\begin{pmatrix}\cos\theta\\ \sin\theta\end{pmatrix}, \mathbf{X} = \begin{pmatrix}0\\0\end{pmatrix}, \mathbf{Z} = \begin{pmatrix}b\\0\end{pmatrix} \tag{2.0.1}$$

This can be written as,

$$\mathbf{Y} = 6\begin{pmatrix}\cos 30\\ \sin 30\end{pmatrix} = \begin{pmatrix}3\sqrt{3}\\3\end{pmatrix}, \tag{2.0.2}$$

$$\mathbf{X} = \begin{pmatrix}0\\0\end{pmatrix}, \tag{2.0.3}$$

$$\mathbf{Z} = \begin{pmatrix}3/tan\theta\\0\end{pmatrix} = \begin{pmatrix}3/\tan 50\\0\end{pmatrix} \tag{2.0.4}$$

These values of A, B and C are substituted and the triangle in code.