

Assignment-4 Latex Report

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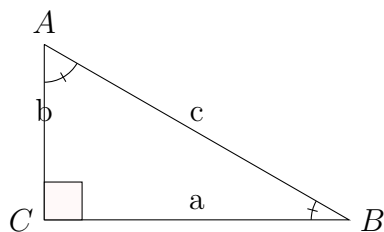
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• **Exercise 2.9**

- 1 Draw a $\triangle ABC$, given that $a+b+c=11$, $\angle B = 30^\circ$ and $\angle C = 90^\circ$**

1.1 Solution

Figure of triangle ABC



It,s given that,

$$a + b + c = 11 \quad (1)$$

Using sin rule we get

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

Using, $\frac{\sin B}{b} = \frac{\sin C}{c}$
we get,

$$(0)a + 2b - c = 0 \quad (2)$$

Also,
 $\cos(30^\circ) = \frac{a}{c}$
we get,

$$2a + 0b - \sqrt{3}(c) = 0 \quad (3)$$

Writing Equations (1),(2) and (3) in matrix form,

$$\begin{pmatrix} 1 & 1 & 1 \\ 0 & 2 & -1 \\ 2 & 0 & -\sqrt{3} \end{pmatrix} \begin{pmatrix} a \\ b \\ c \end{pmatrix} = \begin{pmatrix} 11 \\ 0 \\ 0 \end{pmatrix}$$

By using elementary row operations, we get

$$\boxed{a=4.03}$$

$$\boxed{b=2.32}$$

$$\boxed{c=4.65}$$

1.2 Figure of $\triangle ABC$,

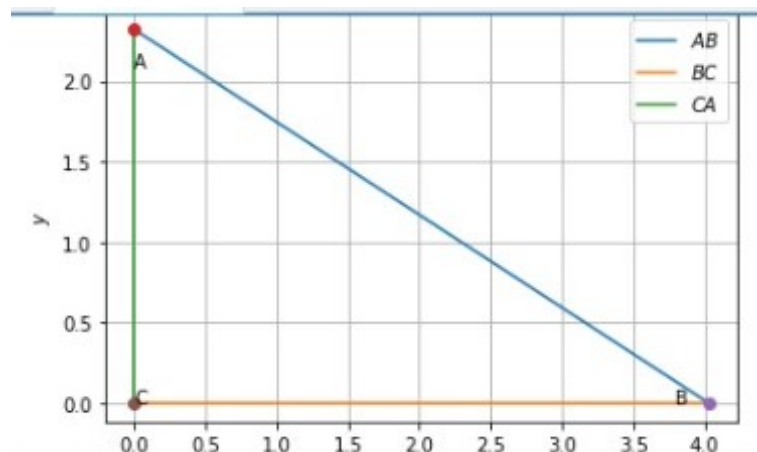


Figure 1: Fig generated using python

Download the python code used for generating the figure from here:

<https://github.com/FuzayilMir/Assignment-4-Construct/blob/main/TRICODE.py>