Assignment-4
Latex Report

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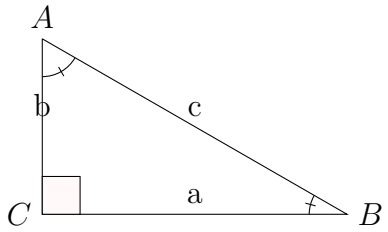
- **Exercise 2.9**

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

1.1 Solution

Figure of triangle ABC



It,s given that,

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

Using sin rule we get

$$\frac{sinA}{a} = \frac{sinB}{b} = \frac{sinC}{c}$$

Using, $\frac{sinB}{b} = \frac{sinC}{c}$ *weget*,

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

Also,
$\text{Cos}(30^\circ) = \frac{a}{c}$
weget,

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

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

$$\boxed{\text{a}= \frac{403}{100}}$$

$$\boxed{\text{b}= \frac{232}{100}}$$

$$\boxed{\text{c}= \frac{465}{100}}$$

1.2 Figure of △ABC,

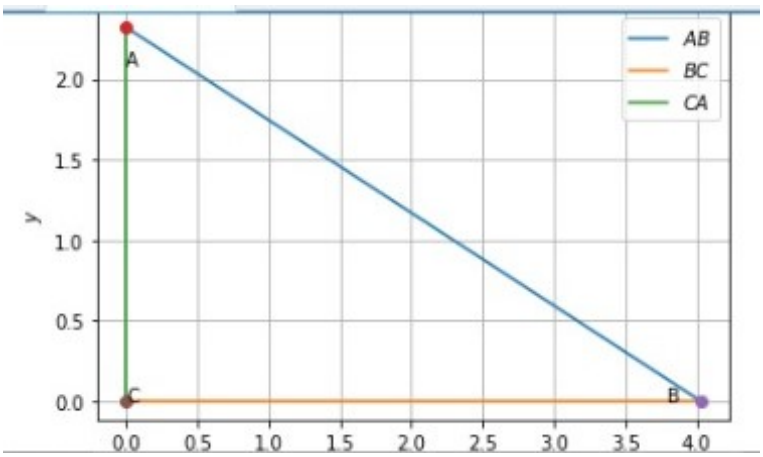


Figure 1: Fig generated using python

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

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