3.3.1

EE24BTECH11030 - J.KEDARANANDA

Question:
Draw a triangle $\triangle ABC$ with $\boldsymbol{BC}$ = 6 cm, $\boldsymbol{AB}$ = 5 cm, and $\angle B = 60°$.
Solution:

Variable	Value
$\boldsymbol{BC}$	6 cm
$\boldsymbol{AB}$	5 cm
$\angle$**B**	60°

TABLE 0

Here $\boldsymbol{AB} = c, \boldsymbol{BC} = a$
We need to find ($\boldsymbol{AC} = b$). Using the Law of Cosines, we have:

$$b^2 = c^2 + a^2 - 2ca\cos(B) \tag{0.1}$$
$$b^2 = 5^2 + 6^2 - 2 \cdot 5 \cdot 6 \cdot \cos(60°) \tag{0.2}$$
$$= 25 + 36 - 2 \cdot 5 \cdot 6 \cdot \frac{1}{2} \tag{0.3}$$
$$= 25 + 36 - 30 \tag{0.4}$$
$$= 31 \tag{0.5}$$
$$\boldsymbol{AC} = \sqrt{31} \approx 5.57\,\text{cm} \tag{0.6}$$

Thus, the length of side $\boldsymbol{AC}$ is approximately 5.57 cm .

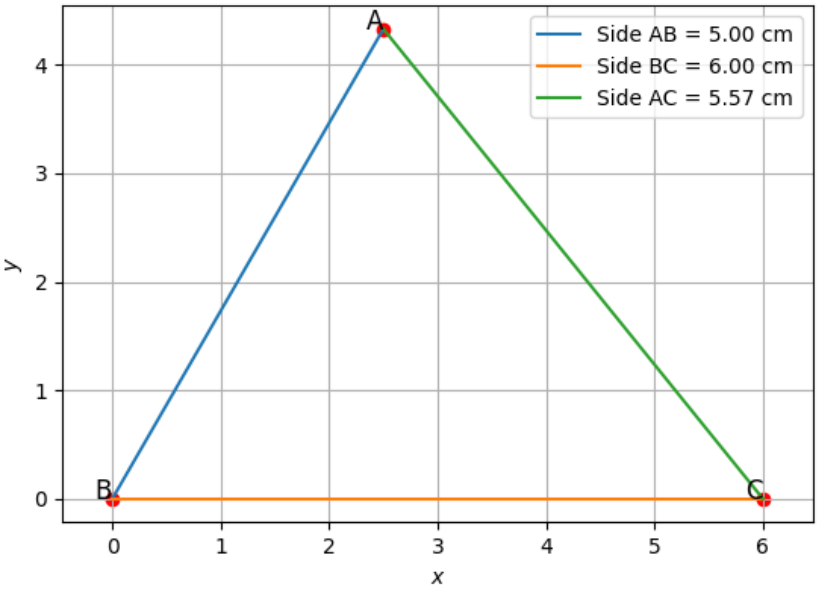

Fig. 0.1