

3.3.1

EE24BTECH11030 - J.KEDARANANDA

Question:

Draw a triangle $\triangle ABC$ with $BC = 6$ cm, $AB = 5$ cm, and $\angle B = 60^\circ$.

Solution:

Variable	Parameter	Value
BC	a	6 cm
AB	c	5 cm
AC	b	-
$\angle B$	-	60°

TABLE 0

We need to find b. Using the Law of Cosines, we have:

$$b^2 = c^2 + a^2 - 2ca \cos(B) \quad (0.1)$$

$$b^2 = 5^2 + 6^2 - 2 \cdot 5 \cdot 6 \cdot \cos(60^\circ) \quad (0.2)$$

$$= 25 + 36 - 2 \cdot 5 \cdot 6 \cdot \frac{1}{2} \quad (0.3)$$

$$= 25 + 36 - 30 \quad (0.4)$$

$$= 31 \quad (0.5)$$

$$AC = \sqrt{31} \approx 5.57 \text{ cm} \quad (0.6)$$

Thus, the length of side AC is approximately 5.57 cm .

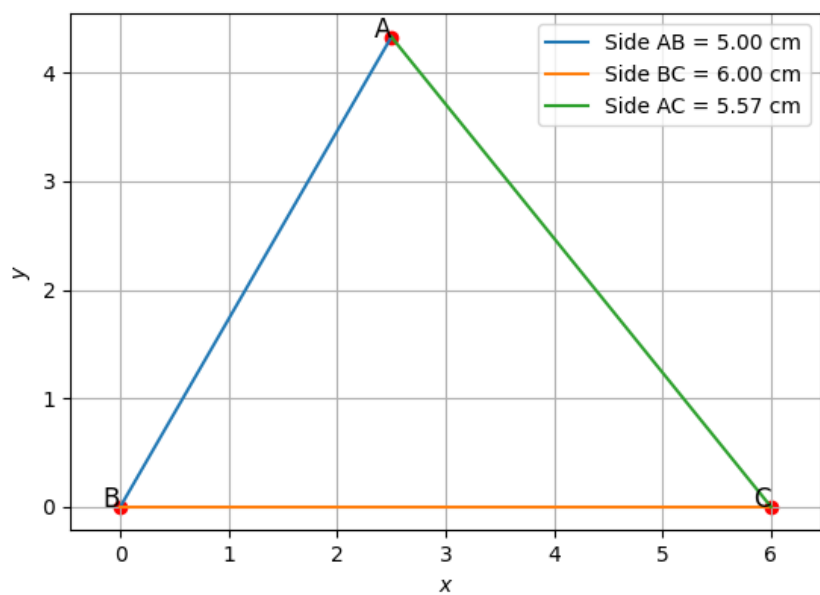


Fig. 0.1