

3-3.3-13

EE24BTECH11064 - Harshil Rathan

Question:

Draw a triangle ABC in which $BC = 7\text{cm}$, and $\angle B = 45^\circ$, $\angle C = 60^\circ$.

Solution:

Find $\angle A$

Variable	Parameter	Value
BC	a	7 cm
AB	c	-
AC	b	-
$\angle B$	-	45°
$\angle C$	-	60°

$$\angle A + \angle B + \angle C = 180^\circ \quad (0.1)$$

$$\angle A = 75^\circ \quad (0.2)$$

Using the Sine Rule,

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} \quad (0.3)$$

$$b = \frac{a \sin B}{\sin A} \quad (0.4)$$

$$b = \frac{14 \sqrt{2}}{\sqrt{6} + \sqrt{2}} \quad (0.5)$$

$$c = \frac{a \sin C}{\sin A} \quad (0.6)$$

$$c = \frac{14 \sqrt{3}}{\sqrt{6} + \sqrt{2}} \quad (0.7)$$

Therefore measure of the sides are, 0.5 0.7

$AB = 7.06\text{cm}$, $BC = 7\text{cm}$, $CA = 9\text{cm}$

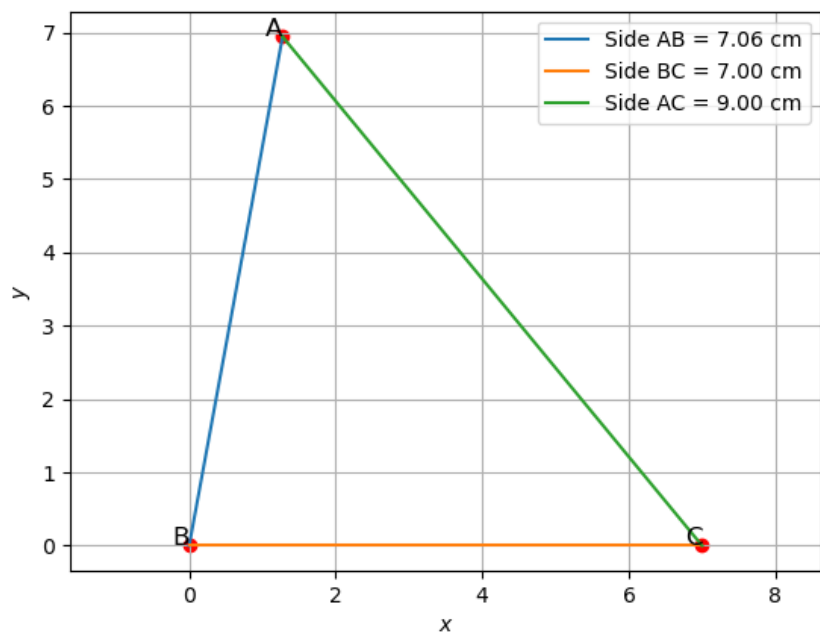


Fig. 0.1