3-3.3-13

EE24BTECH11064 - Harshil Rathan

Question:
Draw a triangle ABC in which $BC = 7cm$, and $\angle B = 45°$, $\angle C = 60°$.
Solution:
Find $\angle A$

Variable	Parameter	Value
$\boldsymbol{BC}$	a	7 cm
$\boldsymbol{AB}$	c	-
$\boldsymbol{AC}$	b	-
$\angle\mathbf{B}$	-	40°
$\angle\mathbf{C}$	-	60°

$$\angle A + \angle B + \angle C = 180° \tag{0.1}$$

$$\angle A = 75° \tag{0.2}$$

Using the Sine Rule,

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} \tag{0.3}$$

$$b = \frac{a \sin B}{\sin A} \tag{0.4}$$

$$b = \frac{14\sqrt{2}}{\sqrt{6} + \sqrt{2}} \tag{0.5}$$

$$c = \frac{a \sin C}{\sin A} \tag{0.6}$$

$$c = \frac{14\sqrt{3}}{\sqrt{6} + \sqrt{2}} \tag{0.7}$$

Therefore measure of the sides are, 0.5 0.7
$AB = 7.06cm$, $BC = 7cm$, $CA = 9cm$

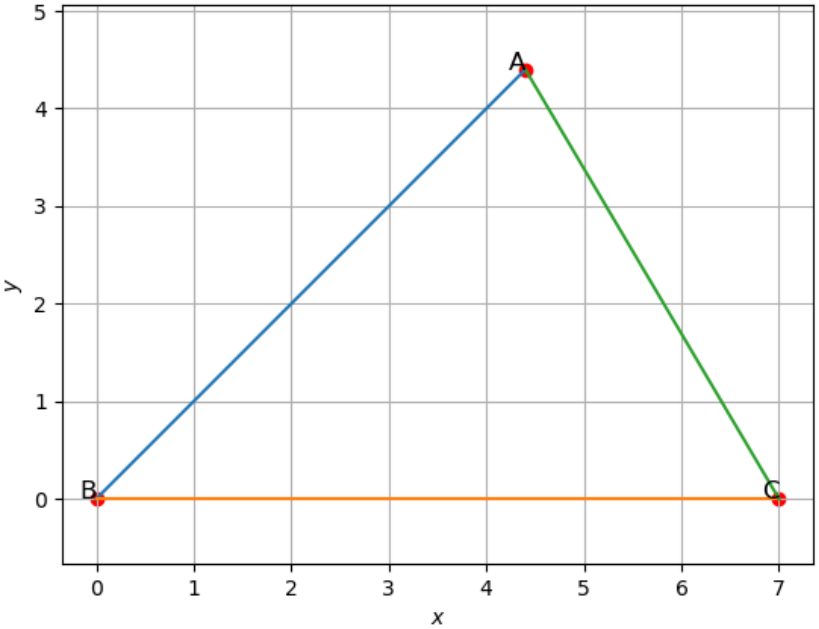

Fig. 0.1