# 3.2.23

AI24BTECH11031 - Shivram S

**Question:**

Construct a triangle $ABC$ in which $BC = 5cm$, $\angle B = 60^\circ$ and $AC + AB = 7.5cm$.

**Solution:**

From (3.1.1.3) and (3.1.1.4) we obtain:

$$c = \frac{K^2 - a^2}{2(K - a\cos B)} = \frac{25}{8} \tag{0.1}$$

$$\mathbf{A} = \begin{pmatrix} \frac{25\sqrt{3}}{16} \\ \frac{25}{16} \end{pmatrix}, \mathbf{B} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}, \mathbf{C} = \begin{pmatrix} 5 \\ 0 \end{pmatrix} \tag{0.2}$$

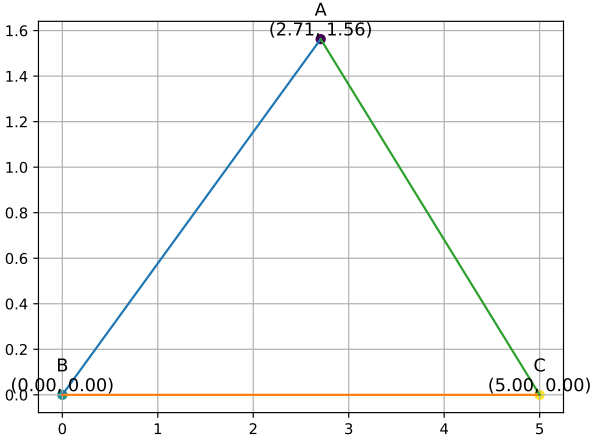


Fig. 0.1: Triangle $ABC$ where $BC = 5cm$, $\angle B = 60^\circ$ and $AC + AB = 7.5cm$