Question 19:
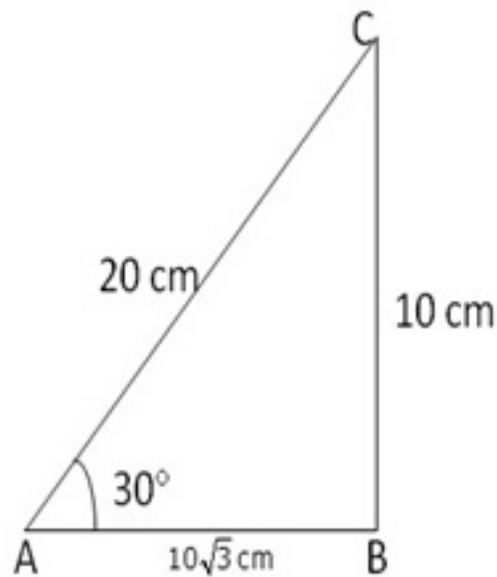
$$\tan(A + B) = \frac{\tan A + \tan B}{1 - \tan A \tan B}$$

$$\tan(A + B) = \frac{\left(\frac{1}{3} + \frac{1}{2}\right)}{1 - \frac{1}{3} \times \frac{1}{2}} \qquad \left[\because \tan A = \frac{1}{3}, \tan B = \frac{1}{2}\right]$$

$$= \frac{\left(\frac{5}{6}\right)}{\left(\frac{5}{6}\right)} = \frac{5}{6} \times \frac{6}{5} = 1$$

$$\tan(A + B) = 1 \Rightarrow \tan(A + B) = \tan 45^\circ$$

Hence, (A + B) = 45°

Question 20:

From right angled ΔABC,



We have $\dfrac{BC}{AC} = \sin 30°$

$\Rightarrow \quad \dfrac{BC}{20} \Rightarrow \dfrac{1}{2}$, BC = 10 cm

By Pythagoras theorem,

$(AB)^2 = (AC)^2 - (BC)^2$

$\Rightarrow AB = \sqrt{(AC)^2 - (BC)^2}$

$\Rightarrow AB = \sqrt{(20)^2 - (10)^2}$

$\Rightarrow AB = \sqrt{300} = 10\sqrt{3}\,cm$

Hence, BC = 10 cm and AB = $10\sqrt{3}$ cm

********** END *********