



Question 19:

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

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

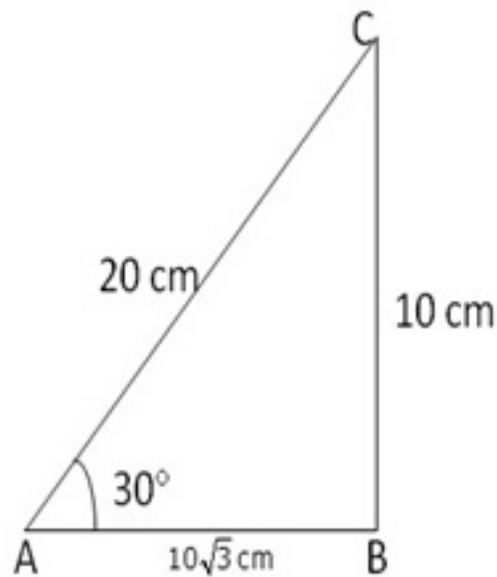
$$= \frac{\left(\frac{5}{6}\right)}{\left(\frac{5}{6}\right)} = \frac{5}{6} \times \frac{6}{5} = 1$$

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

**Hence,  $(A + B) = 45^\circ$**

Question 20:

From right angled  $\triangle ABC$ ,



We have  $\frac{BC}{AC} = \sin 30^\circ$

$$\Rightarrow \frac{BC}{20} = \frac{1}{2}, BC = 10 \text{ cm}$$

By Pythagoras theorem,

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

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

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

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

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

\*\*\*\*\* END \*\*\*\*\*