

# Self reminder

classmate

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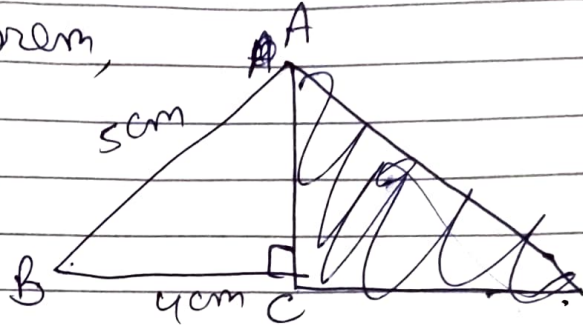
Q2.  
2)

$$AB = 5 \text{ cm} \quad BC = 4 \text{ cm}$$

$$\tan B = ?$$

By Pythagoras theorem,

$$\begin{aligned} AC^2 &= AB^2 + BC^2 \\ AC^2 &= (5)^2 + (4)^2 \\ &= 25 + 16 \\ &= 41 \end{aligned}$$



$$\begin{aligned} AB^2 &= AC^2 + BC^2 \\ (5)^2 &= AC^2 + (4)^2 \\ 25 &= AC^2 + 16 \\ 25 - 16 &= AC^2 \end{aligned}$$

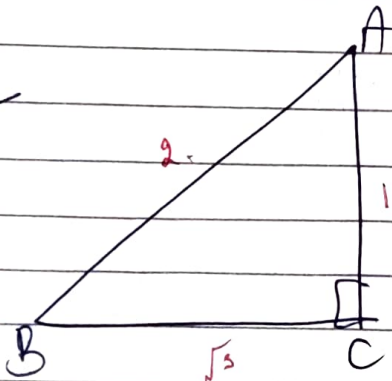
S C T  
P B P  
H H B

$$\begin{aligned} 9 &= AC^2 \\ \boxed{AC = 3} \end{aligned}$$

$$\tan B = \frac{P}{B} = \frac{AC}{BC}$$

$$\tan B = \frac{3}{4}$$

Q3.



$$\sin A = \frac{P}{H} = \frac{AC}{AB}$$

$$\begin{aligned} AB^2 &= AC^2 + BC^2 \\ (2)^2 &= (1)^2 + BC^2 \\ 4 &= 1 + BC^2 \end{aligned}$$

$\cos A, \cos B$

$$\frac{\sqrt{3}}{2} \cdot \frac{1}{2} = \frac{\sqrt{3}}{4}$$

$$\begin{aligned} 3 &= BC^2 \\ \boxed{BC = \sqrt{3}} \end{aligned}$$

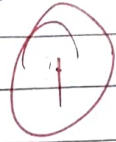
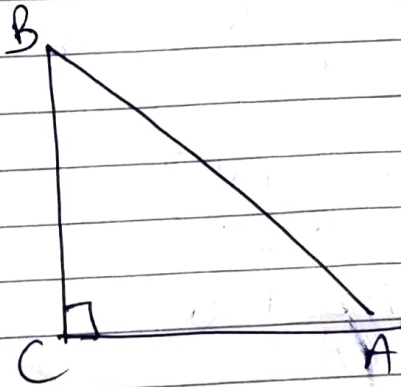
Q6.

$$\tan \theta (\cos \theta) + (1 - \sin \theta)$$

$$\frac{\sin \theta}{\cos \theta} \times \cos \theta + (1 - \sin \theta)$$

$$\sin \theta + 1 - \sin \theta$$

$$= 1$$

Q7.

$$\cos(A+B) = ?$$

In  $\triangle ABC$ 

$$\angle A + \angle B + \angle C = 180^\circ$$

angle sum property.

$$\angle A + \angle B = 90^\circ$$

$$\cos(A+B) = \cos 90^\circ$$

$$\cos(A+B) = 0$$



Q8:

$$15 \cot A = 8 \quad \sin B = ?$$

$$\cot A = \frac{8}{15} = \frac{P}{B} = \frac{AC}{BC}$$

$$AC = 8 \quad BC = 15$$

$$AC^2 = AB^2 + BC^2$$

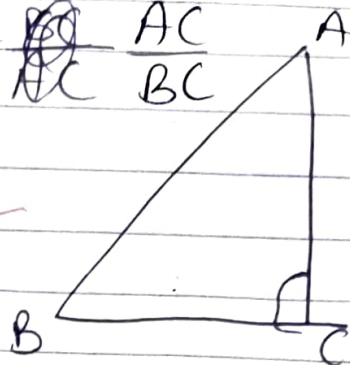
$$AB^2 = AC^2 + BC^2$$

$$AB^2 = (8)^2 + (15)^2$$
$$= 64 + 225$$

$$AB^2 = 289$$

$$AB = 17$$

$$\sin B = \frac{P}{H} = \frac{AC}{AB}$$



SCT  
PBP  
HHB

2

$$\sin B = \frac{8}{17}$$

Q9:

$$2 \sin^2 30 - 3 \cos^2 45 + \tan^2 60 + 3 \sin^2 90$$

$$\sin 30 = \frac{1}{2} \quad \cos 45 = \frac{1}{\sqrt{2}} \quad \tan 60 = \sqrt{3}$$

$$\sin 90 = 1$$

$$= 2 \left(\frac{1}{2}\right)^2 - 3 \left(\frac{1}{\sqrt{2}}\right)^2 + (\sqrt{3})^2 + 3(1)^2$$

$$= 2 \times \frac{1}{4} - 3 \times \frac{1}{2} + 3 + 3$$

$$= \frac{1}{2} - \frac{3}{2} + 6 = \frac{1-3}{2} + 6 = \frac{-2}{2} + 6$$

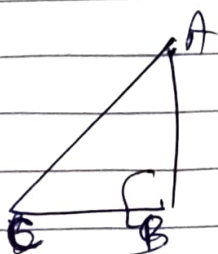
$$= -1 + 6 = 5$$

2

Q16.

$$\tan \theta = \frac{1}{2}$$

$(1 + \sin^2 \theta)$ ,  $(\cos^2 \theta - \sin^2 \theta)$  and  $(2 \sin \theta \cdot \cos \theta)$ .



$$\angle C = 90^\circ$$

$$\tan \theta = \frac{1}{2} = \frac{AB}{BC}$$

$$AB = x$$

$$BC = 2x$$

$$\begin{aligned} AC^2 &= AB^2 + BC^2 \\ &= (x)^2 + (2x)^2 \\ &= x^2 + 4x^2 \\ &= 5x^2 \end{aligned}$$

$$AC = \sqrt{5}x$$

3

$$\sin \theta = \frac{AC}{AB} = \frac{1}{\sqrt{5}} \quad \cos \theta = \frac{2}{\sqrt{5}}$$

$$1 + \sin^2 \theta = 1 + \left(\frac{1}{\sqrt{5}}\right)^2 = 1 + \frac{1}{5} = \frac{5+1}{5} = \frac{6}{5}$$

$$\cos^2 \theta - \sin^2 \theta = \left(\frac{2}{\sqrt{5}}\right)^2 - \left(\frac{1}{\sqrt{5}}\right)^2 = \frac{4}{5} - \frac{1}{5} = \frac{3}{5}$$

$$2 \sin \theta \cdot \cos \theta = 2 \times \frac{1}{\sqrt{5}} \times \frac{2}{\sqrt{5}} = \frac{4}{5}$$

$\frac{3}{5}, \frac{4}{5}, \frac{6}{5}$  ascending order

Q12:  $\tan A = \sqrt{2} - 1$

$$2 \sin A \cdot \cos A$$

$$\tan A = \frac{\sqrt{2} - 1}{1} = \frac{BC}{AB}$$

$$BC = (\sqrt{2} - 1)K$$

$$AB = K$$

$$AC = \sqrt{2} (2 - \sqrt{2})K$$

$$\sin A = \frac{(\sqrt{2} - 1)K}{\sqrt{2} (2 - \sqrt{2})K} = \frac{1}{\sqrt{2} \sqrt{2 - \sqrt{2}}}$$

$$2 \sin A \cdot \cos A$$

$$= 2 \times \frac{\sqrt{2} - \sqrt{2}}{2} \times \frac{1}{\sqrt{2} \sqrt{2 - \sqrt{2}}} = \frac{1}{\sqrt{2}}$$

(B)