

Q1. In a triangle ABC, right angled at B, if  $\tan A = \frac{1}{\sqrt{3}}$ , find the value of :

- (i)  $\sin A \cos C + \cos A \sin C$
- (ii)  $\cos A \cos C - \sin A \sin C$

Ans. 1  
Ans. 0

Q2. In a triangle ABC, right angled at C, if  $\tan A = \frac{1}{\sqrt{3}}$ , find the value of :

- (i)  $\sin A \cos B + \cos A \sin B$

Ans. 1

Q3. In a triangle ABC, right angled at A, if  $\tan C = \sqrt{3}$ , find the value of :

- (i)  $\sin B \cos C + \cos B \sin C$

Ans. 1

Q4. If  $\operatorname{Cosec} A = \sqrt{10}$ , find the value of  $\cos A$ .

Ans.  $\frac{3}{\sqrt{10}}$

Q5. If  $\operatorname{Cot} A = 2$ , find the value of  $\operatorname{cosec}^2 A + \operatorname{cot}^2 A$ .

Ans. 9

Q6. In triangle PQR, if  $\angle Q = 90^\circ$  and  $\sin R = \frac{3}{5}$ , then find the value of  $\cos P$ .

Ans.  $\frac{3}{5}$

Q7. If  $5 \sin P = 12 \cos P$ , then find the value of  $\sec P$ .

Ans.  $\frac{13}{5}$

Q8. If  $4 \sin \theta = 3 \cos \theta$ , find the value of  $\frac{12 \sin \theta - 7 \cos \theta}{8 \sin \theta + 3 \cos \theta}$ .

Ans.  $\frac{2}{9}$

Q9. If  $\sqrt{3} \sin \theta = \cos \theta$ , find the value of  $\frac{\sin \theta \tan \theta (1 + \cot \theta)}{\sin \theta + \cos \theta}$ .

Ans.  $\frac{1}{\sqrt{3}}$

Q10. If  $\sin \theta : \cos \theta = 12 : 13$ , find  $\tan \theta$ ,  $\sin \theta$  and  $\cos \theta$ .

Ans.  $\frac{12}{13}, \frac{12}{\sqrt{313}}, \frac{13}{\sqrt{313}}$

Q11. If  $\sin \theta + \cos \theta = \sqrt{2} \cos \theta$ , find the value of  $\cot \theta$ .

Ans.  $\sqrt{2} + 1$

Q12. In triangle PQR, right-angled at Q,  $PR + QR = 25$  cm and  $PQ = 5$  cm. Determine the values of

$\sin P$ ,  $\cos P$  and  $\tan P$ .

Ans.  $\frac{12}{13}, \frac{5}{13}, \frac{12}{5}$

Q13. In a triangle OPQ, right-angled at P,  $OP = 7$  cm and  $OQ - PQ = 1$  cm. Determine the values of

$\sin Q$  and  $\cos Q$ .

Ans.  $\frac{7}{25}, \frac{24}{25}$

Q14. In a triangle ABC, right-angled at B,  $BC = 7$  cm and  $AC - AB = 1$  cm. Find the value of  $\cos A - \sin A$ .

Ans.  $\frac{17}{25}$

Q15. In a right triangle ABC, right-angled at B, if  $\tan A = 1$ , then verify that  $2 \sin A \cos A = 1$ .

Q16. If  $\sec \alpha = \frac{5}{4}$ , verify that  $\frac{\tan \alpha}{1 + \tan^2 \alpha} = \frac{\sin \alpha}{\sec \alpha}$ .

Q17. If  $3 \tan A = 4$ , prove that  $\sqrt{\frac{\sec A - \operatorname{cosec} A}{\sec A + \operatorname{cosec} A}} = \frac{1}{\sqrt{7}}$ .

Q18. If  $5 \sin \theta = 4$ , prove that  $\frac{1}{\cos \theta} + \frac{1}{\cot \theta} = 3$ .

Q19. If  $4 \tan \theta = 3$ , evaluate  $\left( \frac{4 \sin \theta - \cos \theta + 1}{4 \sin \theta + \cos \theta - 1} \right)$ .

Ans.  $\frac{13}{11}$

Q20. Given that  $\tan A = \frac{3}{4}$ , show that  $\frac{\cos^2 A - \sin^2 A}{\cos A} = \frac{1 - \tan^2 A}{\sec A}$ .

