

Q1. In a triangle ABC, right angled at A, if AB = 12, AC = 5 and BC = 13, find all the six trigonometric ratios of angle B.

Q2. In a triangle ABC, right angled at B, if AB = 4, BC = 3, find all the six trigonometric ratios of angle A.

Q3. In a triangle ABC, right angled at B, if AB = 24 cm, BC = 7 cm. Determine :

(i) Sin A , Cos A

$$\text{Ans. } \sin A = \frac{7}{25}, \cos A = \frac{24}{25}$$

(ii) Sin C , Cos C

$$\text{Ans. } \sin C = \frac{24}{25}, \cos C = \frac{7}{25}$$

Q4. In a triangle PQR, right angled at Q, if PQ = 12 cm, QR = 5 cm. Determine :

(i) Sin P , Cos P

$$\text{Ans. } \sin P = \frac{5}{13}, \cos P = \frac{12}{13}$$

(ii) Sin R , Cos R

$$\text{Ans. } \sin R = \frac{12}{13}, \cos R = \frac{5}{13}$$

Q5. In a triangle ABC, right angled at C, if AB = 29 units, BC = 21 units and $\angle ABC = \theta$. Determine :

(i) $\cos^2 \theta + \sin^2 \theta$

(ii) $\cos^2 \theta - \sin^2 \theta$

$$\text{Ans. (i) } 1 \quad \text{(ii) } \frac{41}{841}$$

Q6. In a triangle PQR, right angled at Q, if PQ = 12 cm, PR = 13 cm. Find $\tan P - \cot R$.

$$\text{Ans. } 0$$

Q7. If $\sin A = \frac{3}{4}$, Calculate $\cos A$ and $\tan A$.

$$\text{Ans. } \cos A = \frac{\sqrt{7}}{4}, \tan A = \frac{3}{\sqrt{7}}$$

Q8. Given that $\tan \theta = \frac{4}{3}$, Calculate all other trigonometric ratios of angle θ .

Q9. Given that $\sec \theta = \frac{13}{12}$, Calculate all other trigonometric ratios.

Q10. Given $15 \cot A = 8$, find $\sin A$ and $\sec A$.

$$\text{Ans. } \sin A = \frac{15}{17} \text{ and } \sec A = \frac{17}{8}$$

Q11. If $24 \cot A = 7$, find the value of $\sin A$.

$$\text{Ans. } \sin A = \frac{24}{25}$$

Q12. If $5 \sin \alpha = 3$, then find the value of $\sec \alpha$.

$$\text{Ans. } \sec \alpha = \frac{5}{4}$$

Q13. If $5 \cos \theta = 4$, then find the value of $\frac{2 \sin \theta - 5 \cos \theta}{\sin \theta}$.

$$\text{Ans. } -\frac{14}{3}$$

Q14. If $5 \tan \theta = 4$, then find the value of $\frac{5 \sin \theta - 3 \cos \theta}{5 \sin \theta + 2 \cos \theta}$.

$$\text{Ans. } \frac{1}{6}$$

Q15. If $3 \cot A = 4$, then find the value of $\frac{\operatorname{cosec}^2 A + 1}{\operatorname{cosec}^2 A - 1}$.

$$\text{Ans. } \frac{17}{8}$$

Q16. If $3 \cot A = 4$, check whether $\frac{1 - \tan^2 A}{1 + \tan^2 A} = \cos^2 A - \sin^2 A$ or not.

Q17. If $\cot A = \frac{7}{8}$, evaluate : (i) $\sin A \cos A$ (ii) $\frac{(1 + \sin A)(1 - \sin A)}{(1 + \cos A)(1 - \cos A)}$ (iii) $\cot^2 A$ Ans. (i) $\frac{56}{113}$ (ii) $\frac{49}{64}$ (iii) $\frac{49}{64}$

Q18. If $\cot \theta = \frac{15}{8}$, evaluate $\frac{(2 + 2 \sin \theta)(1 - \sin \theta)}{(1 + \cos \theta)(2 - 2 \cos \theta)}$.

$$\text{Ans. } \frac{225}{64}$$

Q19. If $\cos \theta = \frac{2}{3}$, then find the value of $2 \sec^2 \theta + 2 \tan^2 \theta - 7$.

$$\text{Ans. } 0$$

Q20. If $\tan \theta = \frac{1}{\sqrt{3}}$, then find the value of $\frac{\operatorname{cosec}^2 \theta - \sin^2 \theta}{\operatorname{cosec}^2 \theta + \sin^2 \theta}$

$$\text{Ans. } \frac{15}{17}$$

