

## PRACTICE TEST: CLASS-X

### Trigonometry X NCERT

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1. Consider  $\triangle ABC$ , right angled at C, in which  $AB = 29$  units,  $BC = 21$  units and  $\angle A = T$ . Determine the values of:
  - (i)  $\cos^2(T) + \sin^2(T)$
  - (ii)  $\cos^2(T) - \sin^2(T)$
2. In a right triangle ABC, right angled at B, if  $\tan(A) = 1$ , then verify that  $2\sin(A)\cos(A) = 1$ .
3. In  $\triangle OPQ$ , right angled at P,  $OP = 7\text{cm}$  and  $OP - OQ = 1\text{cm}$ . Determine the values of  $\sin(Q)$  and  $\cos(Q)$ .
4. In  $\triangle PQR$ , right angled at Q,  $PR + QR = 25\text{cm}$  and  $PQ = 5\text{cm}$ . Determine the values of  $\sin(P)\cos(P)$  and  $\tan(P)$ .
5. Simplify:
  - (i) 
$$\frac{\sin 30^\circ + \tan 45^\circ - \operatorname{cosec} 60^\circ}{\sec 30^\circ + \cos 60^\circ + \cot 45^\circ}$$
  - (ii) 
$$\frac{5\cos^2 60^\circ + 4\sec^2 30^\circ - \tan^2 45^\circ}{\sin^2 30^\circ + \cos^2 30^\circ}$$
6. If  $\sin(A-B) = \frac{1}{2}$ ,  $\cos(A+B) = \frac{1}{2}$ ,  $(T) < A+B < 90^\circ$ . Find A, B.
7. If  $\sin(3A) = \cos(A - 26^\circ)$  where  $3A < 90^\circ$ , then find A.
8. Express the ratios  $\cos(T)$ ,  $\sin(T)$  and  $\sec(T)$  in terms of  $\sin(T)$ .
9. Prove that:
  - (i)  $\sec\theta(1 - \sin\theta)(\sec\theta + \tan\theta) = 1$
  - (ii)  $\frac{\cot\theta - \cos\theta}{\cot\theta + \cos\theta} = \frac{\operatorname{cosec}\theta - 1}{\operatorname{cosec}\theta + 1}$
10. Show:
  - (i) 
$$\frac{\sin\theta - \cos\theta + 1}{\sin\theta + \cos\theta - 1} = \frac{1}{\sec\theta - \tan\theta}$$
  - (ii)  $\sin^6\theta + \cos^6\theta = 1 - 3\sin^2\theta\cos^2\theta$
  - (iii) 
$$\frac{\cos\theta}{1 - \tan\theta} + \frac{\cot\theta}{1 - \tan\theta} = 1 + \tan\theta + \cot\theta = 1 + \sec\theta\operatorname{cosec}\theta$$