

## CHAPTER-8 | Introduction to Trigonometry

### QUIZ PART-05

1. If  $\sin A + \sin^2 A = 1$ , then  $\cos^2 A = ?$

- A.  $\sin A$                                       B.  $1 + \sin^2 A$   
C. 2    D.  $\sin^2 A$                                       (D)

*Explanation:* Using the identity  $\sin^2 A + \cos^2 A = 1$ , we can deduce that  $\cos^2 A = 1 - \sin^2 A$ .

2. The value of  $\cos^2 \theta - 1/(1 + \tan^2 \theta)$  is:

- A.  $\sqrt{3}$     B. 1  
C. 0     D.  $1/2$     (C)

*Explanation:* Using the identity  $1 + \tan^2 \theta = \sec^2 \theta$ , we simplify the expression to find the result as 0.

3.  $1 - \tan^2 \theta = 1/(\sec^2 \theta - \tan^2 \theta)$  is true for:

- A.  $\theta = 0^\circ$                                       B.  $\theta = 45^\circ$   
C.  $\theta = 30^\circ$                                       D.  $\theta = 60^\circ$                                       (B)

*Explanation:* This identity holds true when  $\theta = 45^\circ$ , based on standard trigonometric values.

4. What is the result of  $\sec \theta - \tan \theta = 1?$

- A.  $\sec \theta$   
B.  $\tan \theta$   
C.  $\sec \theta + \tan \theta$   
D.  $\sec \theta - \tan \theta$                                       (A)

*Explanation:* The identity simplifies to  $\sec \theta = 1 + \tan \theta$ , making this the correct choice.

5.  $\cos^2 A + \sin^2 A = 1$  is an example of which type of identity?

- A. Reciprocal Identity  
B. Pythagorean Identity  
C. Co-function Identity  
D. Quotient Identity                                      (B)

*Explanation:* The equation  $\cos^2 A + \sin^2 A = 1$  is a fundamental Pythagorean identity in trigonometry.

6. Which of the following trigonometric identities is correct?

- A.  $\tan^2 A + 1 = \sec^2 A$   
B.  $\cot^2 A + 1 = \sec^2 A$   
C.  $\tan^2 A + 1 = \csc^2 A$   
D.  $\sin^2 A + \cos^2 A = 2$                                       (A)

*Explanation:* The identity  $\tan^2 A + 1 = \sec^2 A$  is a well-known trigonometric identity.

7. Which of the following is the correct form of the trigonometric identity  $\cot^2 A + 1 = \csc^2 A?$

- A.  $\tan^2 A + 1 = \sec^2 A$   
B.  $\sec^2 A + \tan^2 A = 1$   
C.  $\cot^2 A + 1 = \csc^2 A$   
D.  $\sin^2 A + \cos^2 A = 1$                                       (C)

*Explanation:* This is a standard trigonometric identity.

8. Which of the following identities is true?

- A.  $\tan 90^\circ = \infty$                                       B.  $\cos 90^\circ = 1$   
C.  $\sec 90^\circ = 0$                                       D.  $\sin 90^\circ = 0$                                       (A)

*Explanation:*  $\tan 90^\circ$  is undefined and tends towards infinity.

9. The value of  $1/(\sec \theta - \tan \theta)$  is:

- A.  $\sec \theta - \tan \theta$                                       B.  $\tan \theta$   
C.  $\sec \theta + \tan \theta$                                       D.  $\sec \theta$                                       (C)

*Explanation:* By rationalizing the denominator,  $1/(\sec \theta - \tan \theta) = \sec \theta + \tan \theta$ .

10. Which of the following is the correct identity?

- A.  $\sin \theta = 1/\cos \theta$   
B.  $\tan \theta = 1/\sec \theta$   
C.  $\cot \theta = 1/\sin \theta$   
D.  $\sec \theta = 1/\cos \theta$                                       (D)

*Explanation:* This is the correct reciprocal identity for  $\sec \theta$ , which is the reciprocal of  $\cos \theta$ .