1. Express the trigonometric ratios sin A, sec A, and tan A in terms of cot A.
   A. sin A = 1/cot A
   B. sec A = 1/cot A
   C. tan A = 1/cot A
   D. All of the above (D)

Explanation : Using trigonometric identities, all of these can be expressed in terms of cot A based on the relation between these functions.

2. Which of the following identities is true for all values of θ?
   A. $9\sec^2 A - 9\tan^2 A = 1$
   B. $9\sec^2 A - 9\tan^2 A = 9$
   C. $9\sec^2 A - 9\tan^2 A = 0$
   D. $9\sec^2 A - 9\tan^2 A = 8$ (C)

Explanation: The correct identity follows from the trigonometric identity $\sec^2 A - \tan^2 A = 1$. Therefore, the result of $9\sec^2 A - 9\tan^2 A$ simplifies to 0.

3. What is the value of $(\sec A + \tan A)(1 - \sin A)$?
   A. sec A B. sin A
   C. cos A D. cosec A (C)

Explanation: This expression simplifies to cos A using the trigonometric identities.

4. The identity $\sec^2 A + 1 = \tan^2 A$ is:
   A. True B. False
   C. Undefined D. Not applicable(B)

Explanation: The correct identity is $\sec^2 A = 1 + \tan^2 A$. Therefore, the given identity is false.

5. Which of the following is the correct form of the identity $\sec A \cdot \tan A = 1 - \sin A$?
   A. sec A
   B. tan A
   C. 1 − sin A
   D. None of the above (C)

Explanation : This identity can be derived by manipulating the given expression using known trigonometric identities.

6. The trigonometric identity $1 + \tan^2 A = \sec^2 A$ holds true for:
   A. All angles B. Only for 90°
   C. Only for 45° D. Only for 0° (A)

Explanation : This is a basic trigonometric identity that holds true for all angles where the expression is defined.

7. Which of the following identities is true for all acute angles A?
   A. $\cos^2 A + \sin^2 A = 2$
   B. $\cos^2 A + \sin^2 A = 1$
   C. $2\cos^2 A + \sin^2 A = 1$
   D. $\tan^2 A + 1 = 0$ (B)

Explanation : The identity $\cos^2 A + \sin^2 A = 1$ is a fundamental trigonometric identity that holds true for all acute angles.

8. Prove the identity $\sec^2 A - 1 = \tan^2 A$.
   A. $\sec^2 A - 1 = \sin^2 A$
   B. $\sec^2 A - 1 = \tan^2 A$
   C. $\sec^2 A = 1 + \tan^2 A$
   D. None of the above (B)

Explanation : This is a standard trigonometric identity. The identity $\sec^2 A - 1 = \tan^2 A$ is derived from the fundamental identity $\sec^2 A = 1 + \tan^2 A$.

9. If $\text{cosec}^2 A = 1 + \cot^2 A$, which of the following is true?
   A. $\sec^2 A = 1 + \cot^2 A$
   B. $\sec^2 A = 1 + \tan^2 A$
   C. $\text{cosec}^2 A = 1 + \tan^2 A$
   D. $\sec^2 A = 1 + \cot^2 A$ (B)

Explanation : The identity $\sec^2 A = 1 + \tan^2 A$ is a standard trigonometric identity.

10. The value of $(1 - \cos^2 A)$ is equal to:
    A. $\sin^2 A$ B. $1 - \sin^2 A$
    C. $\cos^2 A$ D. $\tan^2 A$ (A)

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

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