

ONE MARK TEST

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ENGLISH MEDIUM

LESSON – 6

TEST - 3

- 1 If $(\sin \alpha + \operatorname{cosec} \alpha)^2 + (\cos \alpha + \sec \alpha)^2 = k + \tan^2 \alpha + \cot^2 \alpha$, then the value of k is equal to
(A) 9 (B) 7 (C) 5 (D) 3
- 2 If $5x = \sec \theta$ and $\frac{5}{x} = \tan \theta$, then $x^2 - \frac{1}{x^2}$ is equal to
(A) 25 (B) $\frac{1}{25}$ (C) 5 (D) 1
- 3 The electric pole subtends an angle of 30° at a point on the same level as its foot. At a second point 'b' metres above the first, the depression of the foot of the pole is 60° . The height of the pole (in metres) is equal to
(A) $\sqrt{3} b$ (B) $\frac{b}{3}$ (C) $\frac{b}{2}$ (D) $\frac{b}{\sqrt{3}}$
- 4 If $\sin \theta + \cos \theta = a$ and $\sec \theta + \operatorname{cosec} \theta = b$, then the value of $b(a^2 - 1)$ is equal to
(A) $2a$ (B) $3a$ (C) 0 (D) $2ab$
- 5 $\tan \theta \operatorname{cosec}^2 \theta - \tan \theta$ is equal to
(A) $\sec \theta$ (B) $\cot^2 \theta$ (C) $\sin \theta$ (D) $\cot \theta$
- 6 The value of $\sin^2 \theta + \frac{1}{1 + \tan^2 \theta}$ is equal to
(A) $\tan^2 \theta$ (B) 1 (C) $\cot^2 \theta$ (D) 0

- 7 If $x = a \tan \theta$ and $y = b \sec \theta$ then
- (A) $\frac{y^2}{b^2} - \frac{x^2}{a^2} = 1$ (B) $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ (C) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ (D) $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 0$
- 8 If the ratio of the height of a tower and the length of its shadow is $\sqrt{3} : 1$, then the angle of elevation of the sun has measure
- (A) 45° (B) 30° (C) 90° (D) 60°
- 9 $a \cot \theta + b \operatorname{cosec} \theta = p$ and $b \cot \theta + a \operatorname{cosec} \theta = q$ then $p^2 - q^2$ is equal to
- (A) $a^2 - b^2$ (B) $b^2 - a^2$ (C) $a^2 + b^2$ (D) $b - a$
- 10 The angle of elevation of a cloud from a point h metres above a lake is β . The angle of depression of its reflection in the lake is 45° . The height of location of the cloud from the lake is
- (A) $\frac{h(1 + \tan \beta)}{1 - \tan \beta}$ (B) $\frac{h(1 - \tan \beta)}{1 + \tan \beta}$ (C) $h \tan(45^\circ - \beta)$ (D) none of these