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 □ist, 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 $a\ \cot\theta + b\ \text{cosec}\theta = p$ and $b\ \cot\theta + a\ \text{cosec}\,\theta = q$ 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) $h\tan(45° - \beta)$ (D) none of these