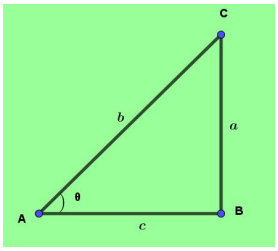
MATHS
CLASS X
6. Trigonometry

Multiple choice questions (MCQs)

1. From the figure, the value of $\text{cosec}\theta+\cot\theta$ is



(1) $\frac{a+b}{c}$ (2) $\frac{c}{a+b}$ (3) $\frac{b+c}{a}$ (4) $\frac{b}{a+c}$

2. $(\sec A+\tan A)(1-\sin A)$ is equal to

(1) $\sec A$ (2) $\sin A$ (3) $\text{cosec}\,A$ (4) $\cos A$

3. If $x=r\sin\theta\cos\varphi$, $y=r\sin\theta\sin\varphi$ and $z=r\cos\theta$ Then, $x^2+y^2+z^2$ is equal to

(1) r (2) r^2 (3) $\frac{r^2}{2}$ (4) $2r^2$

4. If $\cos\theta+\cos^2\theta=1$ then $\sin^2\theta+\sin^4\theta$ is equal to

(1) 1 (2) 0 (3) -1 (4) none of these

5. If $\tan\theta+\cot\theta=3$ then $\tan^2\theta+\cot^2\theta$ is equal to

(1) 4 (2) 7 (3) 6 (4) 9

6. If $m\cos\theta+n\sin\theta=a$ and $m\sin\theta-n\cos\theta=b$ then a^2+b^2 is equal to(L)

(1) m^2-n^2 (2) m^2+n^2 (3) m^2n^2 (4) n^2-m^2

7. $\frac{\tan\theta}{\sec\theta-1}+\frac{\tan\theta}{\sec\theta+1}$ is equal to

(1) $2\tan\theta$ (2) $2\sec\theta$ (3) $2\text{cosec}\theta$ (4) $2\tan\theta\sec\theta$

8. The value of $\left(\frac{3}{\cot^2\theta}-\frac{3}{\cos^2\theta}\right)$ is equal to

(1) $\frac{1}{3}$ (2) 3 (3) 0 (4) -3

9. If $\sin(\alpha+\beta)=1$, then $\cos(\alpha-\beta)$ can be reduced to

(1) $\sin\alpha$ (2) $\cos\beta$ (3) $\sin 2\beta$ (4) $\cos 2\beta$

10. If $x=a\sec\theta$ and $y=b\tan\theta$, then $b^2x^2-a^2y^2$ is equal to

(1) ab (2) a^2-b^2 (3) a^2+b^2 (4) a^2b^2

11. The angle of elevation of the top of tree from a point at a distance of 250 m from its base is 60°. The heights of the tree is

(1) 250 m (2) $250\sqrt{3}$ m (3) $\frac{250}{\sqrt{3}}$ m (4) $200\sqrt{3}$ m

12. The angle of depression of a boat from a $50\sqrt{3}m$ high bridge is 30°. The horizontal distance of the boat from the bridge is

(1) 150 m (2) $150\sqrt{3}$ m (3) 60 m (4) $60\sqrt{3}$ m

13. A Ladder of length 14 m just reaches the top of a wall. If the ladder makes an angle of 60° with the horizontal, then the height of the wall is

(1) $14\sqrt{3}$ m (2) $28\sqrt{3}$ m (3) $7\sqrt{3}$ m (4) $35\sqrt{3}$ m

14. The top of two poles of height 18.5 m and 7 m are connected by a wire. If the wire makes an angle of measure 30° with horizontal, then the length of the wire is

(1) 23 m (2) 18 m (3) 28 m (4) 25.5 m

15. The banks of a river are parallel. A swimmer starts from a point on one of the banks and swims in a straight line inclined to the bank at 45° and reaches the opposite bank at a point 20 m, from the point opposite to the starting point. The breadth of the river is equal to

$(\sqrt{2}=1.414)$

(1) 12.12 m (2) 14.14 m (3)16.16 m (4) 18.18 m