INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet 2025-26

CLASS: X

SUBJECT: MATH EMATICS

Chapter No:8 – Introduction to Trigonometry

MCQ:

1- $\frac{Sec\,30^0}{Cosec\,60^0}$ **=**

(a) $\frac{2}{\sqrt{3}}$ **(b)** $\frac{\sqrt{3}}{2}$ **(c)** $\sqrt{3}$ **(d) 1**

2- Given that $\sin\theta = \frac{a}{b}$,find $\cos\theta$

(a) $\frac{b}{\sqrt{b^2-a^2}}$ (b) $\frac{b}{a}$ (c) $\frac{\sqrt{b^2-a^2}}{b}$ (d) $\frac{a}{\sqrt{b^2-a^2}}$

3- $(\sec A + \tan A)(1-\sin A)$ =

(a)$\sec A$ (b) $\sin A$ (c) $\operatorname{cosec} A$ (d) $\cos A$

4- If $\tan\theta = \frac{1}{\sqrt{3}}$ **, the value of** $\sin(90^0-\theta)$ **is**

(a) 0 (b) 1 (c) $\sqrt{3}$ **(d)** $\frac{\sqrt{3}}{2}$

5-If $\tan\theta + \frac{1}{\tan\theta} = 2$ **,then the value of** $tan^2\theta + \frac{1}{tan^2\theta}$ **is**

(a) 3 (b) 4 (c) 2 (d) -4

6- If $2\tan A = 3$ **, then the value of** $\frac{4\sin A+3\cos A}{4\sin A-3\cos A}$ **is**

(a) $\frac{7}{\sqrt{13}}$ **(b)** $\frac{1}{\sqrt{13}}$ **(c) 3 (d) does not exist**

7- $\left[\frac{3}{4}tan^2 30^0 - Sec^2 45^0 + Sin^2 60^0\right]$ **is equal to**

(a) -1 (b) $\frac{5}{6}$ **(c)** $\frac{-3}{2}$ **(d)** $\frac{1}{6}$

8- If $x = a\sec\theta$ **,** $y = b\tan\theta$ **then** $\frac{x^2}{a^2} - \frac{y^2}{b^2}$ **is equal to**

(a) a^2 **(b)** b^2 **(c) -1 (d) 1**

9- If $\cot\beta = \frac{7}{8}$ **, then** $\frac{(1+\sin\beta)(1-\sin\beta)}{(1+\cos\beta)(1-\cos\beta)}$ **=**

(a) $\frac{49}{64}$ **(b)** $\frac{64}{49}$ **(c)** $\frac{7}{8}$ **(d)** $\frac{7}{5}$

10- If $\cos\theta + \sin\theta = \sqrt{2}\cos\theta$ **then** $\cos\theta - \sin\theta$ ***is***

(a) $-\sqrt{2}\cos\theta$ **(b)** $\sqrt{2}\sin\theta$ **(c)** $2\sin\theta$ **(d)** $\sqrt{2}tan\theta$

Assertion and Reasoning Based Questions:

The following questions consist of two statements -Assertion (A) and Reason(R) .Answer these questions selecting the appropriate option given below :

(a) Both A and R true and R is the correct explanation for A.
(b) Both A and R are true but R is not the correct explanation for A
(c) A is true but R is false.
(d) A is false but R is true .

1-Assertion: In a right angled triangle ,if $\cos\theta = \frac{1}{2}$ **and** $\sin\theta = \frac{\sqrt{3}}{2}$ **then** $\tan\theta = \sqrt{3}$**.**

Reason: $\tan\theta = \frac{\sin\theta}{\cos\theta}$

2-Assertion: $\sin A$ **is the product of Sin and A**

Reason: The value of $\sin\theta$ **increases as** θ **increases.**

Subjective Questions:

1-Find the value of $\frac{2\tan 30^0}{1+tan^2 30^0}$

2-If $\cot\theta = \frac{15}{8}$ then evaluate $\frac{(2+\sin\theta)(1-\sin\theta)}{(1+\cos\theta)(2-2\cos\theta)}$

3- If $\sin A = \frac{3}{4}$ calculate $\sec A$

4-Evaluate: $sin^2 60^0$ + $2\tan 45^0$ - $cos^2 30^0$

5-Prove that : $2cos^2\theta + \frac{2}{1+cot^2\theta} = 2$

6-Prove that : $\frac{Sin^3\theta+Cos^3\theta}{Sin\theta+Cos\theta} + \sin\theta\cos\theta = 1$

7-Prove that : $\frac{sin\theta+cos\theta}{sin\theta-cos\theta} + \frac{sin\theta-cos\theta}{sin\theta+cos\theta} = \frac{2sec^2\theta}{tan^2\theta-1}$

8-Prove that : $\frac{cos\theta}{1-tan\theta} + \frac{sin\theta}{1-cot\theta} = cos\theta + sin\theta$

9-Prove that: $\sqrt{\frac{1+sin\theta}{1-sin\theta}} + \sqrt{\frac{1-sin\theta}{1+sin\theta}} = 2\sec\theta$

10- If A and B are acute angles such that $\sin(A-B) = 0$ and $2\cos(A+B) - 1 = 0$, $then\ find\ angles\ A\ and\ B$.

11-Evaluate: $\frac{\mathbf{5Cos^2 60^0 + 4Sec^2 30^0 - tan^2\ 45^0}}{\mathbf{Sin^2 30^0 + Cos^2 30^0}}$

12-Find the value of x :

$2Cosec^2 30^0 + Sin^2 60^0 - \frac{3}{4}tan^2 30^0 = 10$

13- If $7Sin^2\theta + 3Cos^2\theta = 4$, $Show\ that\ \tan\theta = \frac{1}{\sqrt{3}}$

14- If $\sin\theta = \frac{12}{13}$, $0^0 < \theta < 90^0$ then find the value of $\frac{Sin^2\theta-Cos^2\theta}{2Sin\theta Cos\theta}$ x $\frac{1}{tan^2\theta}$

15-Prove that $(1 + \cot\theta - \mathrm{Cosec}\,\theta)(1 + \tan\theta + \sec\theta) = 2$

16- If $\sec\theta + \tan\theta = p$, $prove\ that\ \sin\theta = \frac{p^2-1}{p^2+1}$

17- If $x = a\sec\theta + b\tan\theta$ *and* $y = a\tan\theta + b\sec\theta$ *then prove that* $x^2 - y^2 = a^2 - b^2$

18- Prove that : $\frac{tan^2 A}{tan^2 A-1} + \frac{Cosec^2 A}{Sec^2 A-Cosec^2 A} = \frac{1}{1-2Cos^2 A}$

19-In the $\Delta\ ABC, \angle A = Right\ angle$, $AB = \sqrt{x}$ *and BC =* $\sqrt{x+5}$ *Evaluate*

$$\sin C.\cos C.\tan C + Cos^2 C.\sin A$$

20-Prove that : $\frac{tan\theta}{1-Cot\theta} + \frac{Cot\theta}{1-tan\theta} = 1 + \sec\theta\cos\theta$

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