INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet for the Academic Year 2025 -26

CLASS: 11 SUBJECT: Mathematics DATE: 12/05/25

LESSON : TRIGONOMETRIC FUNCTIONS

---

1. Change into radian measure: 150^0 , 225^0 , 270^0
2. Change to degree measures : 1/3 , -5, 3/5
3. Find all the trigonometric ratios if $\sin x = \frac{-2\sqrt{6}}{5}$ and x lies in the third quadrant.
4. Find the values of ; sin(1200^0), sec(1845^0), $\cos\frac{5\pi}{3}$, $\cot\frac{11\pi}{6}$
5. Prove that ; $\sin\frac{8\pi}{3}\cos\frac{23\pi}{6} + \cos\frac{13\pi}{3}\sin\frac{35\pi}{6} = \frac{1}{2}$
6. Prove that ; $sin^2\frac{\pi}{18} + sin^2\frac{\pi}{9} + sin^2\frac{7\pi}{18} + sin^2\frac{4\pi}{9} = 2$
7. Prove that; $\sin600^0 \cos390^0 + \cos480^0 \sin150^0 = -1$
8. Find the value of : $\sin 105^0$, $\cos120^0$
9. Prove that ; $\tan75^0 + \cot75^0 = 4$.
10. Prove the following ; a)cos3x +cos5x + cos7x + cos9x = 4cosx cos2x cos6x

    b) sinA + sin2A + sin4A + sin5A = 4 cosA/2 cos3A/2 sin3A

11. Prove that ; a) $\frac{\sin(x-y)}{\sin(x+y)} = \frac{tanx-tany}{tanx+tany}$ b) $\frac{sin9A-sin7A}{cos7A-cos9A} = cot8A$

    c) $\frac{sinA+sin3A+sin5A}{cosA+cos3A+cos5A} = tan3A$ d) $\frac{sinx+sin3x-sin2x}{cosx+cos3x-cos2x} = tan2x$

    e) $\frac{cosx+\ cos2x+cos3x+cos4x}{sinx+sin2x+sin3x+sin4x} = cot5x/2$

12. Prove that ; a) $\sin(x+y)\sin(x-y) = \sin^2x - \sin^2y$, b) $2\tan2x = \frac{cosx+sinx}{cosx-sinx} - \frac{cosx-sinx}{cosx+sinx}$
13. Prove that ; a) $\frac{sin2x}{1-cos2x} = cotx$, b) $\frac{sin3x}{sinx} - \frac{cos3x}{cosx} = 2$
14. If cosx = -3/5 and x lies in the third quadrant, find the values of , sin x/2, cos x/2 , tan x/2 and sin2x.
15. If $\sin x = \frac{\sqrt{5}}{3}, -\frac{\pi}{2} \le x \le \frac{\pi}{2}$, find the values of sinx/2, cosx/2 and tanx/2 .