**Trig Worksheet**

Complete the following **without a calculator**.

I. Find each value:

| | | | |
|---|---|---|---|
| 1. $\sin\frac{\pi}{6}$ | 2. $\cos\frac{5\pi}{6}$ | 3. $\sin\frac{8\pi}{3}$ | 4. $\tan\frac{3\pi}{4}$ |

II. Solve the following on the domain [0, 2π):

| | | | |
|---|---|---|---|
| 5. $arccos\left(\frac{1}{2}\right)$ | 6. $\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)$ | 7. $\arctan(\sqrt{3})$ | 8. $cos^{-1}(-1)$ |
| 9. $tan\theta = 1$ | 10. $csc\theta = \sqrt{2}$ | 11. $\arcsin(-1)$ | 12. $\arctan\left(\frac{\sqrt{3}}{3}\right)$ |

III. Solve on [0, 2π):

| | | | |
|---|---|---|---|
| 13. $2\sin^2 x + 3\sin x + 1 = 0$ | 14. $4\sin^2 x = 2\cos x + 1$ | 15. $\frac{\cos x \cot x}{1-\sin x} = 3$ | 16. $2\sin^2\theta - \sin\theta - 1 = 0$ |
| 17. $1 + \sin\theta = 2\cos^2\theta$ | 18. $\sin^2\theta - 1 = 0$ | 19. $\csc x + \cot x = 1$ | 20. $\sec^2 x + 0.5\tan x = 1$ |

IV Simplify the following to simple trig function:

| | | | |
|---|---|---|---|
| 21. $\cos x + \tan x \sin x$ | 22. $\sin^3 x + \sin x \cos^2 x$ | 23. $\frac{\csc x - \sin x}{\csc x}$ | 24. $\frac{\sin x}{\cos x} + \frac{\cos x}{1+\sin x}$ |