

You must do your work on a separate piece of paper for full credit.

Solve each of the following equations for $0 \leq x < 2\pi$.

1. $2\cot 4x + 1 = -1$

2. $\sin 3x + 2 = 3$

3. $2\sec x + 1 = \sec x + 3$

4. $\sec^2 3x - 2 = -1$

5. $(\cot x - \sqrt{3})(2\sin x + \sqrt{3}) = 0$

6. $\left(\tan \frac{x}{3} - 1\right)\left(\cos \frac{x}{2} - 1\right) = 0$

7. $\cos^2 x + 2\cos x + 1 = 0$

8. $2\cos^2 x - \sqrt{3}\cos x = 0$

Solve each of the following equations for $0 \leq \theta < 360^\circ$.

9. $2\sin \theta - 1 = \csc \theta$

10. $9\cos^2 \theta - 6\cos \theta = -1$

11. $\tan \theta - \cot \theta = 0$

12. $\sec^2 \theta = 2\tan \theta + 4$

13. $\cos^2 \theta = \sin^2 \theta + 1$

14. $\csc^2 \theta - 2\cot \theta = 0$

15. $\tan^3 \theta = 3\tan \theta$

16. $2\cos^4 \theta = \cos^2 \theta$

17. $\tan \theta \cos \theta = \cos \theta$

18. $2\tan^2 \theta \sin \theta - \tan^2 \theta = 0$

#19 – 22 : Prove each identity. **You must do them on a separate piece of paper for credit.**

19. $\frac{1}{\sec^2 x} + \frac{1}{\csc^2 x} = 1$

20. $\cos^2 \theta + \tan^2 \theta \cos^2 \theta = 1$

21. $2 - \sec^2 x = 1 - \tan^2 x$

22. $\sin x + \cos x \cot x = \csc x$

23. Graph $y = 3 \cos 2\left(x + \frac{\pi}{2}\right) + 1$

Amp=

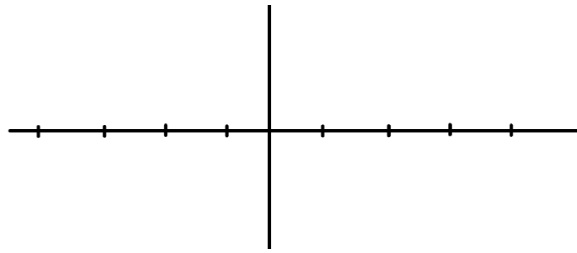
B=

Period=

Scale;

Phase shift

AOW:



24. Write an equation of a line with inclination of 135° and containing the point $(2, -4)$.

25. Find the angle inclination of the line $4x + 3y = 15$ to the nearest hundredth of a degree.

26. Find the equation of the graph below:

Max

Min

AOW

Amp

Period

B

Sine function

Cosine function



1. $\frac{3\pi}{16}, \frac{7\pi}{16}, \frac{11\pi}{16}, \frac{15\pi}{16}, \frac{19\pi}{16}, \frac{23\pi}{16}, \frac{27\pi}{16}, \frac{31\pi}{16}$

3. $\frac{\pi}{3}, \frac{5\pi}{3}$

5. $\frac{\pi}{6}, \frac{7\pi}{6}, \frac{4\pi}{3}, \frac{5\pi}{3}$

7. π

9. $90^\circ; 210^\circ; 330^\circ$

11. $45^\circ; 135^\circ; 225^\circ; 315^\circ$

13. $0^\circ; 180^\circ$

15. $0^\circ; 60^\circ; 120^\circ; 180^\circ; 240^\circ; 300^\circ$

17. $45^\circ; 90^\circ; 225^\circ; 270^\circ$

24. $y = -x - 2$

26a. $y = 2 \cos \pi x + 2;$ $y = -2 \sin \pi \left(x - \frac{1}{2}\right) + 2;$ $y = 2 \sin \pi \left(x + \frac{1}{2}\right) + 2$

2. $\frac{\pi}{6}, \frac{5\pi}{6}, \frac{3\pi}{2}$

4. $0, \frac{\pi}{3}, \frac{2\pi}{3}, \pi, \frac{4\pi}{3}, \frac{5\pi}{3}$

6. $0, \frac{3\pi}{4}$

8. $\frac{\pi}{6}, \frac{\pi}{2}, \frac{3\pi}{2}, \frac{11\pi}{6}$

10. $70.5^\circ; 289.5^\circ$

12. $71.6^\circ; 135^\circ; 251.6^\circ; 315^\circ$

14. $45^\circ; 225^\circ$

16. $45^\circ; 90^\circ; 135^\circ; 225^\circ; 270^\circ; 315^\circ$

18. $0^\circ; 30^\circ; 150^\circ; 180^\circ$

25. 126.87°