Worksheet 4: Trigonometric Equations

Be sure to show all work that leads to your answers. No late papers will be accepted.

1. Find all solutions to the equation $2 \sin x + 1 = 0$ in the interval $[0, 2\pi]$.

2. Find all solutions to the equation $3 \cos x = 3$ in the interval $[0, 2\pi]$.

3. Find all solutions to the equation $3 \sin x - 4 = \sin x - 2$ in the interval $[0, 2\pi]$.

4. Find all solutions to the equation $4 \cos^2 x - 1 = 0$ in the interval $[0, 2\pi]$.

5. Find all solutions to the equation $\cos(2x) = \dfrac{1}{2}$ in the interval $[0, 2\pi]$.

6. Find all solutions to the equation $\tan^2 x = 3$ in the interval $[0, 2\pi]$.

7. Find all solutions to the equation $\sin x + \sqrt{2} = -\sin x$ in the interval $[-\pi, \pi]$.

8. Find all solutions to the equation $2\cos(3x) - 1 = 0$ in the interval $[0, \pi]$.

9. Find all solutions to the equation $\sec x = 2\cos x$ in the interval $[0, 2\pi]$.

10. Find all solutions to the equation $2\sin^2 x - \sin x - 1 = 0$ in the interval $[0, 2\pi]$.

11. Find all solutions to the equation $\sin x \cos x + \cos x = 0$ in the interval $[0, 2\pi]$.

12. Find all solutions to the equation $\sin(2x) = -\cos(2x)$ in the interval $[0, 2\pi]$.