EXAMPLE TRIGONOMETRIC EQUATIONS.

Directions: Solve each equation on the interval $[0, 2\pi)$. Use ONLY those methods discussed in class.

1. $2\sin(x)\cos(x) + \sin(x) = 0$
2. $4\cos^2(x) - 2 = 0$
3. $\sin(x)\tan^2(x) - 3\sin(x) = 0$
4. $\sec(x) - 2 = 0$
5. $2\sin^2(x) + 3\sin(x) + 1 = 0$
6. $10\sin^2(x) - 5 = 0$
7. $3\csc^2(x) - 4 = 0$
8. $\sec(x)\tan(x) + \sec(x) = 0$
9. $\left(\tan^2(x) - 1\right)\left(\cos^2(x) - 1\right) = 0$
10. $2\cos^2(x) - \cos(x) - 1 = 0$
11. $\sin(x)\sec(x) + \frac{1}{2}\sin(x) = 0$
12. $\sin^2(x) + \cos(x)\sin(x) = 0$

ANSWERS:

1. $\left\{0, \pi, 2\pi/3, 4\pi/3\right\}$
2. $\left\{\pi/4, 3\pi/4, 5\pi/4, 7\pi/4\right\}$
3. $\left\{0, \pi, \pi/3, 2\pi/3, 4\pi/3, 5\pi/3\right\}$
4. $\left\{\pi/3, 5\pi/3\right\}$
5. $\left\{5\pi/6, 7\pi/6, 3\pi/2\right\}$
6. $\left\{\pi/4, 3\pi/4, 5\pi/4, 7\pi/4\right\}$
7. $\left\{\pi/3, 2\pi/3, 4\pi/3, 5\pi/3\right\}$
8. $\left\{3\pi/4, 7\pi/4\right\}$
9. $\left\{0, \pi, \pi/4, 3\pi/4, 5\pi/4, 7\pi/4\right\}$
10. $\left\{0, 2\pi/3, 4\pi/3\right\}$
11. $\left\{0, \pi\right\}$
12. $\left\{0, \pi, 3\pi/4, 7\pi/4\right\}$