Pre-Calculus:
Sec. 5.5 (Day 2)
Solving Trigonometric Equations

1) Solve: a) For principal solutions on the interval $[0, 2\pi)$.
b) For general solutions.

$2 \sin x \cos x = \tan x$

2) Solve: a) For principal solutions on the interval $[0, 2\pi)$.
b) For general solutions.

$$\sec\theta = -\frac{2\sqrt{3}}{3}$$

3) Review:

Graph $y = \cos x$ and $y = \cos 2x$

How many solutions does each of the following have on the interval $[0, 2\pi)$:

$$\cos\theta = \frac{1}{2}$$

$$\cos 2\theta = \frac{1}{2}$$

4) Solve the **multiple angle** equation on the interval $[0, 2\pi)$.

Anytime you are solving a multiple angle problem, you must find the general solutions *first.*

$$2\cos 2x - \sqrt{2} = 0$$

5) Solve $\sin 3x = -\frac{1}{2}$ *for* $0 \le x < 2\pi$

6) Solve $\cos 2x - \sin x = 0$ *for* $0 \le x < 2\pi$

7) Solve $4\sin\frac{1}{2}x = 3 \quad for\ 0 \le x < 2\pi$

* We do not get a value we recognize here, so we must use another method. We will solve graphically with the graphing utility feature of our calculator.

  Round solutions to the nearest thousandth.

8) Solve $1.5\cos 2x = \frac{1}{2}$ *for* $0 \le x < 2\pi$

* We do not get a value we recognize here, so we must use another method. We will solve graphically with the graphing utility feature of our calculator.

Round solutions to the nearest thousandth.

9) Solve $2\cos^2 x - 1 = 3\cos x$ *for* $0 \le x < 2\pi$