Section 8-2 Sine and Cosine Curves
Day 1

Objective: To find equations of different sine and cosine curves and to apply these equations.

Warm-up:

Graph each function using degrees and radians:

1. $y = \sin x$

2. $y = \cos x$

For functions $y = A\sin Bx$ and $y = A\cos Bx$ ($A \neq 0$ and $B > 0$):

$$\text{Amplitude} = |A| \qquad \text{period} = \frac{2\pi}{B} \text{ or } \frac{360^\circ}{B^\circ}$$

where B is the frequency.

Give the period, frequency and amplitude of each function. Then look at the graph in the calculator.

1. $y = 4\sin 2x$

2. $y = -3\cos\frac{1}{2}x$

Give the amplitude and period of each function. Then sketch the function.

3. $y = 4\cos 2x$

4. $y = -3\sin\frac{x}{2}$

Day 2

Solve the equations over the domain $0 \le \theta < 360^\circ$ and $0 \le x < 2\pi$.

1. a. $2\sin x = 1$ b. $2\sin 2x = 1$ c. $2\sin \frac{x}{2} = 1$

2. $5\sin 3x = -2$

Day 3

Objective: To find equations of different sine and cosine curves and to apply these equations.

Warm-up.

Solve the equation for the domain $0 \le \theta < 360^\circ$. Give exact values and try the problem without a calculator.

1. $4\sin 2\theta - 2 = -4$

2. What would the answer be to #1 for a domain of $(-\infty, \infty)$?

Solve the equation over the domain $0 \le x < 2\pi$. Use a calculator and give answers to the tenth of a radian.

3. $5\tan x + 2 = -2$

4. Graph the function $y = -2\sin(3x)$ over the domain $0 \le \theta < 360^\circ$.