Name: **PreCalculus Classwork 3**

3-A Solving Simple Trigonometric Equations Algebraically

1. Fill in the blanks.

The equation sin $\theta = .78$ has _____ solutions. One of them can be found by typing _____ on the calculator. A second can be found by subtracting the first answer from _____. All of the other solutions are _____ to one of the first two solutions.

2. Find the general solution.

a) $\cos \theta = -.94$

b) $\tan \theta = 1.19$

3. Find all solutions in the range $-360° \leq \theta \leq 360°$.

a) $\cos \theta = -.94$

b) $\tan \theta = 1.19$

3-B Solving Complicated Trigonometric Equations Algebraically

4. Find all solutions in the range $0° \leq \theta \leq 360°$. Do not use a calculator for values on the unit circle.

a) $2 \sin \theta = 1$

b) $2 \sin 3\theta = 1$

c) $2 \sin 3\theta = \cos 3\theta$

d) $\sec \theta = 2$

5. Solve by factoring.

a) $x^2 = 4x$

b) $10x^3 + 70x^2 + 120x = 0$

c) $\tan^2\theta = 4\tan\theta$

d) $10\tan^3\theta + 70\tan^2\theta + 120\tan\theta = 0$

3-C Graphs of Sine and Cosine Functions

6. State the following for the equation $y = 5 - \frac{1}{2}\sin 4(x - \frac{\pi}{3})$.

a) amplitude

b) period

c) phase shift

d) vertical shift

7. Write a sine equation with the stated attribute.

a) It has an amplitude of 3.

b) It has a period of π.

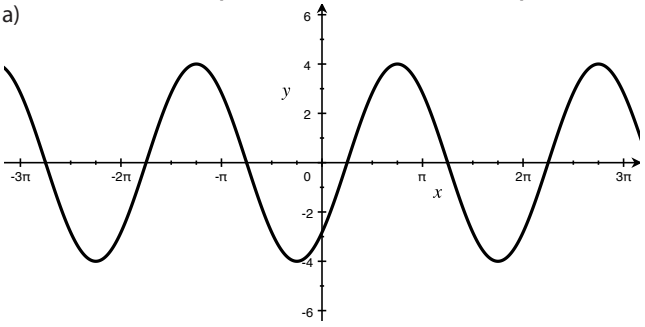
c) It has a period of $\frac{\pi}{3}$.

d) It has a phase shift of $\frac{\pi}{4}$.

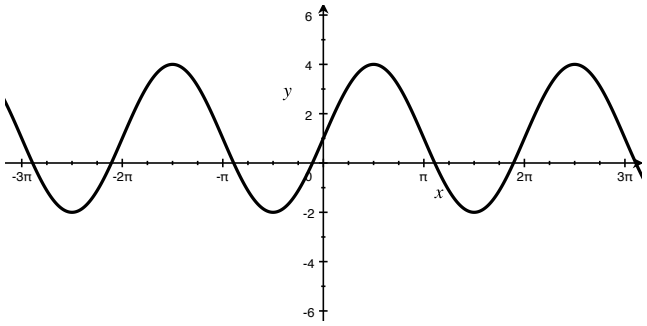
e) It has a period of 6π, a phase shift of $\frac{\pi}{12}$, and a vertical shift of -5.

8. Write a sine equation and a cosine equation for each of the following graphs.

a)



b)



9. Sketch two periods of each of the following graphs.

a) $a(x) = 3 \sin x$

b) $b(x) = -3 \sin x$

c) $c(x) = 1 - 3 \sin x$

d) $d(x) = \cos 2x$

e) $e(x) = \cos 2(x - {}^{\pi}/_{2})$

f) $f(x) = \cos (2x - \pi)$

3-D Solving Trigonometric Equations Graphically

10. Use a graphing calculator to find two solutions.

a) $3 \sin {}^{x}/_{2} = 2 \cos x$