REVIEW TEST #2

Chapters 4, 5, and 6 (6.1, 6.2)

Test #2 will be Wednesday, Nov. 7

You should know the following:

- how to graph the basic functions sin, cos, tan, cot, sec, csc
- domain, range, period, amplitude (when defined) and vertical asymptotes (when applicable) for the basic functions
- how to graph transformations of trigonometric functions (vertic al translations, vertical stretching and compression, horizontal stretching and compression, horizontal shifting
- how to graph the inverse sine, inverse cosine, and inverse tangent functions
- domain and range for the inverse functions
- evaluate the inverse sine, cosine, and tangent functions
- compose trigonometric functions and their inverses
- prove trigonometric identities
- solve trigonometric equations

- IMPORTANT FORMULAS

  - $\tan x = \dfrac{\sin x}{\cos x}$
  - $\cot x = \dfrac{1}{\tan x} = \dfrac{\cos x}{\sin x}$
  - $\sec x = \dfrac{1}{\cos x}$
  - $\csc x = \dfrac{1}{\sin x}$
  - $\sin^2 x + \cos^2 x = 1$
  - sine and cosine functions have period $2p$

    $\sin(x + 2kp) = \sin x$

    $\cos(x + 2kp) = \cos x$
  - tangent function has period p

    $\tan(x + kp) = \tan x$
  - $\cos(a+b) = \cos a \cos b - \sin a \sin b$
  - $\cos(a-b) = \cos a \cos b + \sin a \sin b$
  - $\sin(a+b) = \sin a \cos b + \sin b \cos a$
  - $\sin(a-b) = \sin a \cos b - \sin b \cos a$
  - $\cos 2a = \cos^2 a - \sin^2 a$
  - $\cos 2a = 2\cos^2 a - 1$
  - $\cos 2a = 1 - 2\sin^2 a$
  - $\sin 2a = 2\sin a \cos a$

OTHER FORMULAS

$\sin(x+p) = -\sin x$

$\cos(x+p) = -\cos x$

$\cos(-x) = \cos x$ cosine is an even function

$\sin(-x) = -\sin x$ sine is an odd function

$\tan(a+b) = \dfrac{\tan a + \tan b}{1 - \tan a \tan b}$

$\tan(a-b) = \dfrac{\tan a - \tan b}{1 + \tan a \tan b}$

$\tan 2a = \dfrac{2\tan a}{1 - \tan^2 a}$

$\cos a = \pm\sqrt{\dfrac{1+\cos 2a}{2}}$

$\sin a = \pm\sqrt{\dfrac{1-\cos 2a}{2}}$

To prepare for the test, study the following:

All problems done in class + Quiz #2

Homework #4	Section 4.1	7, 8, 11 – 24 , 51, 53, 55, 57
	Section 4.2	1, 4, 7, 13, 17, 20, 21, 23, 30, 33 – 36, 41, 42, 44, 46, 47, 48
	Section 4.3	1, 4, 7, 10, 11, 14, 15, 18, 19, 29, 33, 34 37, 47, 49
	Section 4.5	7, 13, 20, 23, 24
Homework #5	Section 4.6	all
	Section 5.1	all
	Section 5.2	1 – 7 odd, 21 – 29 odd, 53, 55
	Section 5.3	all
	Section 5.5	1, 3, 5, 7, 9, 11

Sections 6.1 & 6.2 Study all exercises done in class. For more practice, do some of the odd problems from the book: 6.1 (1 – 37, 47 – 53), 6.2 (1 – 37, 47 – 57)

1) Find a formula for $\tan(a+b)$ and $\tan(a-b)$ in terms of tan a and tan b.

2) Find a formula for $\sin 3a$ in terms of $\sin a$.

3) Find a formula for $\cos 3a$ in terms of $\cos a$.

4) Express each of the following in terms of x: $\cos(\sin^{-1} x), \sin(\cos^{-1} x), \cos(\tan^{-1} x)$, $\sin(\tan^{-1} x)$, $\tan(\cos^{-1} x), \tan(\sin^{-1} x)$.