Ch. 5 Review

Note: This is not a complete list of topics – you should study your lecture notes and homework in addition to reviewing the items listed here.

- 1. Know all Type I identities from the identity handout. (Type II identities will be given.)
- 2. Verifying identities
 - a. Try to rewrite the more complicated side to look like the simpler side.
 - b. Look for versions of the Pythagorean Identity.
 - c. Rewrite everything in terms of sine and cosine.
 - d. Look for expressions to factor.

 $[ex] \sin^2 x - 2\sin x + 1 = (\sin x - 1)^2$

e. Rational expressions can be combined.

$$[ex] \quad \frac{1}{\sin\theta} + \frac{1}{\cos\theta} = \frac{\cos\theta}{\cos\theta\sin\theta} + \frac{\sin\theta}{\cos\theta\sin\theta} = \frac{\cos\theta + \sin\theta}{\cos\theta\sin\theta}$$

f. Multiply by the LCD in a complex fraction. 1

$$[ex] \quad \frac{1 + \frac{1}{\cos\theta}}{\frac{\sin\theta}{\cos\theta} - 1} = \frac{1 + \frac{1}{\cos\theta}}{\frac{\sin\theta}{\cos\theta} - 1} \cdot \frac{\cos\theta}{\cos\theta} = \frac{\cos\theta + 1}{\sin\theta - \cos\theta}$$

g. If an expression contains $1 + \sin x$, consider multiplying by $\frac{1 - \sin x}{1 - \sin x}$. (Similarly for $1 - \sin x$, $1 + \cos x$, or $1 - \cos x$.)

- 3. Given one or more trigonometric values, find others using triangles or identities.
- 4. To find trigonometric functions of non-standard values, write them as sums, differences, or ½ of known angles.