

## Pg. 308 4.3B – Right Triangle Trigonometry

### Fundamental Trigonometric Identities:

#### Reciprocal Identities

$$\sin \theta = \frac{1}{\csc \theta} \quad \cos \theta = \frac{1}{\sec \theta} \quad \tan \theta = \frac{1}{\cot \theta}$$

$$\csc \theta = \frac{1}{\sin \theta} \quad \sec \theta = \frac{1}{\cos \theta} \quad \cot \theta = \frac{1}{\tan \theta}$$

#### Quotient Identities

$$\tan \theta = \frac{\sin \theta}{\cos \theta} \quad \cot \theta = \frac{\cos \theta}{\sin \theta}$$

#### Pythagorean Identities

$$\sin^2 \theta + \cos^2 \theta = 1 \quad 1 + \tan^2 \theta = \sec^2 \theta \quad 1 + \cot^2 \theta = \csc^2 \theta$$

### Ex 1:

Use the trigonometric identities to transform the left side of the equation into the right side.

a)  $\cos \theta \sec \theta = 1$

b)  $(1 + \sin \theta)(1 - \sin \theta) = \cos^2 \theta$

c)  $\sin^2 \theta - \cos^2 \theta = 2 \sin^2 \theta - 1$

d)  $\frac{\tan \beta + \cot \beta}{\tan \beta} = \csc^2 \beta$

**Note:** Make sure TI is in degree mode.

**Ex 2:**

Use a calculator to evaluate each function. Round your answers to four decimal places.

a)  $\tan 23.5^\circ$

b)  $\cot 66.5^\circ$

c)  $\cos 4^\circ 50' 12''$

**Ex 3:**

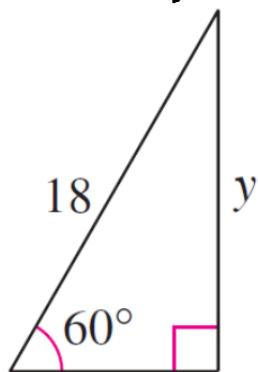
Find the values of  $\theta$  in degrees and radians without the aid of a calculator.

a)  $\tan \theta = \sqrt{3}$

b)  $\sec \theta = \sqrt{2}$

**Ex 4:**

Solve for  $y$ .



**Assignment 4.3B**

Pg. 309 **REQUIRED:** Problem Set #'s 33-61 ODD