

# Math 230 Trig Review.

For Chapter 7, you'll need to know all of the following very well.

## I. Trig Identities

$$\textcircled{1} \sec x = \frac{1}{\cos x} \quad \textcircled{2} \csc x = \frac{1}{\sin x}$$

$$\textcircled{3} \tan x = \frac{\sin x}{\cos x} \quad \textcircled{4} \cot x = \frac{\cos x}{\sin x}$$

$$\textcircled{5} \sin^2 x + \cos^2 x = 1.$$

Divide both sides of  $\textcircled{5}$  by  $\sin^2 x$  to get

$$\textcircled{6} 1 + \cot^2 x = \csc^2 x.$$

Divide both sides of  $\textcircled{5}$  by  $\cos^2 x$  to get

$$\textcircled{7} \tan^2 x + 1 = \sec^2 x$$

Half angle formulas:

$$\textcircled{8} \sin^2 x = \frac{1}{2} (1 - \cos 2x)$$

$$\cos^2 x = \frac{1}{2} (1 + \cos 2x)$$

## II. Derivatives

$$\frac{d}{dx} \sin x = \cos x$$

$$\frac{d}{dx} \cos x = -\sin x$$

$$\frac{d}{dx} \tan x = \sec^2 x$$

$$\frac{d}{dx} \cot x = -\csc^2 x$$

$$\frac{d}{dx} \sec x = \sec x \tan x$$

$$\frac{d}{dx} \csc x = -\csc x \cot x$$