MATH 18.01 - MIDTERM 4 - FORMULA SHEET

18.01 Calculus, Fall 2014 Professor: Jared Speck

$$(\sin x)^2 + (\cos x)^2 = 1, \qquad (\sec x)^2 = (\tan x)^2 + 1$$

$$(\sin x)^2 = \frac{1}{2} - \frac{1}{2}\cos(2x), \qquad (\cos x)^2 = \frac{1}{2} + \frac{1}{2}\cos(2x)$$

$$\cos(2x) = (\cos x)^2 - (\sin x)^2, \qquad \sin(2x) = 2\sin x \cos x$$

$$\frac{d}{dx}\tan x = (\sec x)^2, \qquad \frac{d}{dx}\sec x = \sec x \tan x$$

$$\frac{d}{dx}\arctan x = \frac{1}{1+x^2}, \qquad \frac{d}{dx}\arcsin x = \frac{1}{\sqrt{1-x^2}}$$

$$\int \tan x\, dx = -\ln|\cos x| + C, \qquad \int \sec x\, dx = \ln|\sec x + \tan x| + C$$