

MATH 18.01 - MIDTERM 4 - FORMULA SHEET

18.01 Calculus, Fall 2017

Professor: Jared Speck

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

$$(\sec x)^2 = (\tan x)^2 + 1$$

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

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

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

$$\sin(2x) = 2 \sin x \cos x$$

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

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

$$\frac{d}{dx} \arctan x = \frac{1}{1+x^2},$$

$$\frac{d}{dx} \arcsin x = \frac{1}{\sqrt{1-x^2}}$$

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

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