

Standard Derivatives

$$\frac{d}{dx} 1 = 0$$

$$\frac{d}{dx} \ln x = \frac{1}{x}$$

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

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

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

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

$$\frac{d}{dx} x^n = nx^{n-1}$$

$$\frac{d}{dx} a^x = a^x \ln a$$

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

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

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

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

$$\frac{d}{dx} e^x = e^x$$

$$\frac{d}{dx} \log_a x = \frac{1}{x \ln a}$$

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

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

$$\frac{d}{dx} \tan^{-1} x = \frac{1}{1+x^2}$$

$$\frac{d}{dx} \cot^{-1} x = -\frac{1}{1+x^2}$$

Standard Integrals

$$\int x^n dx = \frac{x^{n+1}}{n+1} + c$$

$$\int e^x dx = e^x + c$$

$$\int \sin x dx = -\cos x + c$$

$$\int \sec^2 x dx = \tan x + c$$

$$\int \sec x \tan x dx = \sec x + c$$

$$* \int \tan x dx = -\ln |\cos x| + c$$

$$* \int \sec x dx = \ln |\sec x + \tan x| + c$$

$$\int \frac{dx}{\sqrt{1-x^2}} = \sin^{-1} x + c$$

$$\int \frac{dx}{x\sqrt{x^2-1}} = \sec^{-1} |x| + c$$

$$\int \frac{1}{x} dx = \ln |x| + c$$

$$\int a^x dx = \frac{a^x}{\ln a} + c$$

$$\int \cos x dx = \sin x + c$$

$$\int \csc^2 x dx = -\cot x + c$$

$$\int \csc x \cot x dx = -\csc x + c$$

$$* \int \cot x dx = \ln |\sin x| + c$$

$$* \int \csc x dx = -\ln |\csc x + \cot x| + c$$

$$\int \frac{dx}{1+x^2} = \tan^{-1} x + c$$

* To be derived.