# Common Derivatives

**Common Derivatives**

$$\frac{d}{dx}(x) = 1$$

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

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

$$\frac{d}{dx}\Big(\sin(x)\Big) = \cos(x)$$

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

$$\frac{d}{dx}\Big(e^x\Big) = e^x$$

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

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

$$\frac{d}{dx}\Big(\ln(x)\Big) = \frac{1}{x},\ \ x > 0$$

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

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

$$\frac{d}{dx}\Big(\ln|x|\Big) = \frac{1}{x},\ \ x \neq 0$$

$$\frac{d}{dx}\Big(\sec(x)\Big) = \sec(x)\tan(x)$$

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

$$\frac{d}{dx}\Big(\log_a(x)\Big) = \frac{1}{x\ln(a)},\ \ x > 0$$