

9/15/16

DERIVATIVE OF a^x

$$\frac{d}{dx}(a^u) = a^u \ln a \frac{du}{dx}$$

DERIVATIVE OF e^x

$$\frac{d}{dx}(e^u) = e^u \frac{du}{dx}$$

DERIVATIVE $\ln x$

$$\frac{d}{dx} \ln u = \frac{1}{u} \frac{du}{dx}$$

DERIVATIVE $\log_a x$

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

DERIVATIVE $\sin x$

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

DERIVATIVE OF **COS X**

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

DERIVATIVE OF **TAN X**

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

DERIVATIVE OF **OTHER TRIG**

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

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

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

DERIVATIVE OF **JERK** $\left[\frac{d}{dx} \text{ (acceleration)} \right]$

$$f(t) = \frac{da}{dt} = \frac{d^3 s}{dt^3}$$