BC Calc

$\frac{d}{dx}[e^u] = e^{u} \cdot \frac{du}{dx}$

$\frac{d}{dx}[u^n] = n \cdot u^{n-1} \frac{du}{dx}$

$\frac{d}{dx}[u \cdot v] = u \cdot \frac{dv}{dx} + v \frac{du}{dx}$

$\frac{d}{dx}[\sin(u)] = \cos(u) \cdot \frac{du}{dx}$

$\frac{d}{dx}[c \cdot x^n] = cn \cdot x^{n-1}$

$\frac{d}{dx}[\ln(u)] = \frac{1}{u} \cdot \frac{du}{dx}$

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

$\frac{d}{dx}\left[\frac{u}{v}\right] = \frac{v \frac{du}{dx} - u \frac{dv}{dx}}{(v)^2}$

$\frac{d}{dx}[\cot(u)] = -\csc^2(u) \cdot \frac{du}{dx}$

$\frac{d}{dx}[\arctan(u)] = \frac{1}{1+u^2} \cdot \frac{du}{dx}$

$\frac{d}{dx}[\sec(u)] = \sec(u) \cdot \tan(u) \frac{du}{dx}$

$\frac{d}{dx}[\csc(u)] = -\csc(u) \cdot \cot(u) \frac{du}{dx}$

$\frac{d}{dx}[\arcsin(u)] = \frac{1}{\sqrt{1-u^2}} \frac{du}{dx}$

$\frac{d}{dx}[\arccos(u)] = \frac{-1}{\sqrt{1-u^2}} \frac{du}{dx}$

$\frac{d}{dx}[\tan(u)] = \sec^2(u) \cdot \frac{du}{dx}$

$\frac{d}{dx}[\cos(u)] = -\sin(u) \cdot \frac{du}{dx}$

$\int_a^b f(x)dx = F(b) - F(a)$

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

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

$\int sin(x)dx = -\cos(x) + C$

$\int sec(x)\tan(x)dx = \sec(x) + C$

$\int tan(x)dx = \ln|\sec(x)| + C$ or $-\ln|\cos(x)| + C$

$\int cot(x)dx = \ln|\sin(x)| + C$

$\int cos(x)dx = \sin(x) + C$

$\int csc(x)dx = -\ln|\csc x + \cot x| + C$ or $\ln|\csc x - \cot x| + C$

$\int sec^2(x)dx = \tan(x) + C$

$\int csc^2(x)dx = -\cot(x) + C$

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

$\int \csc(x)\cot(x)dx = -\csc(x) + C$

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

NOT FOR AB

Taylor Series approximations for:
$e^x, \cos(x), \sin(x), \frac{1}{1-x}$

The difference between finding the velocity of a parametric system vs. the length of a parametric curve.