CHAPTER 4 DERIVATIVE FORMULAS

AP CALC: DERIVATIVES
$\frac{d}{dx}\left(x^n\right)=nx^{n-1}dx$
$\frac{d}{dx}\left(e^u\right)=e^u\frac{du}{dx}$
$\frac{d}{dx}\left(\ln u\right)=\frac{1}{u}*\frac{du}{dx}$
$\frac{d}{dx}\left(a^u\right)=(\ln a)a^u\frac{du}{dx}$
$\frac{d}{dx}\left(\log_a u\right)=\frac{1}{(\ln a)u}*\frac{du}{dx}$
$\frac{d}{dx}\left(\sin u\right)=\left(\cos u\right)\frac{du}{dx}$
$\frac{d}{dx}\left(\cos u\right)=-\left(\sin u\right)\frac{du}{dx}$
$\frac{d}{dx}\left(\tan u\right)=\left(\sec^2 u\right)\frac{du}{dx}$
$\frac{d}{dx}\left(\sec u\right)=\left(\sec u\tan u\right)\frac{du}{dx}$
$\frac{d}{dx}\left(\cot u\right)=-\left(\csc^2 u\right)\frac{du}{dx}$
$\frac{d}{dx}\left(\csc u\right)=-\left(\csc u\cot u\right)\frac{du}{dx}$
$\frac{d}{dx}\left(\sin^{-1} u\right)=\frac{1}{\sqrt{1-u^2}}*\frac{du}{dx}$
$\frac{d}{dx}\left(\cos^{-1} u\right)=-\frac{1}{\sqrt{1-u^2}}*\frac{du}{dx}$
$\frac{d}{dx}\left(\tan^{-1} u\right)=\frac{1}{1+u^2}*\frac{du}{dx}$
$\frac{d}{dx}\left(\cot^{-1} u\right)=-\frac{1}{1+u^2}*\frac{du}{dx}$
$\frac{d}{dx}\left(\sec^{-1} u\right)=\frac{1}{\lvert u\rvert\sqrt{u^2-1}}*\frac{du}{dx}$
$\frac{d}{dx}\left(\csc^{-1} u\right)=-\frac{1}{\lvert u\rvert\sqrt{u^2-1}}*\frac{du}{dx}$