AP Calculus BC
Differentiation Formulas and Integration Table

Chain Rule	Product Rule	Quotient Rule
$\frac{d}{dx}f(g(x))=f'(g(x))\cdot g'(x)$	$\frac{d}{dx}(f\cdot g)=f\cdot g'+g\cdot f'$	$\frac{d}{dx}\left(\frac{f}{g}\right)=\frac{g\cdot f'-f\cdot g'}{g^2}$

Differentiation Formula	Integral
$\frac{d}{dx}(u^n)=nu^{n-1}\frac{du}{dx}$	$\int u^n du=\frac{1}{n+1}u^{n+1}+C$
$\frac{d}{dx}(e^u)=e^u\frac{du}{dx}$	$\int e^u du=e^u+C$
$\frac{d}{dx}(a^u)=a^u\ln a\frac{du}{dx}$	$\int a^u du=\frac{a^u}{\ln a}+C$
$\frac{d}{dx}(\ln u)=\frac{1}{u}\frac{du}{dx}$	$\int\frac{1}{u}du=\ln\lvert u\rvert+C$; $\int\frac{1}{au+b}du=\frac{1}{a}\ln\lvert au+b\rvert+C$
$\frac{d}{dx}(\log_b u)=\frac{1}{u\ln b}\frac{du}{dx}$	
$\frac{d}{dx}(\sin u)=\cos u\frac{du}{dx}$	$\int\cos u\,du=\sin u+C$
$\frac{d}{dx}(\cos u)=-\sin u\frac{du}{dx}$	$\int\sin u\,du=-\cos u+C$
$\frac{d}{dx}(\tan u)=\sec^2 u\frac{du}{dx}$	$\int\sec^2 u\,du=\tan u+C$
$\frac{d}{dx}(\cot u)=-\csc^2 u\frac{du}{dx}$	$\int\csc^2 u\,du=-\cot u+C$
$\frac{d}{dx}(\sec u)=\sec u\tan u\frac{du}{dx}$	$\int\sec u\tan u\,du=\sec u+C$
$\frac{d}{dx}(\csc u)=-\csc u\cot u\frac{du}{dx}$	$\int\csc u\cot u\,du=-\csc u+C$
$\frac{d}{dx}(\sin^{-1}u)=\frac{1}{\sqrt{1-u^2}}\frac{du}{dx}$	$\int\frac{1}{\sqrt{1-u^2}}du=\sin^{-1}u+C$
$\frac{d}{dx}(\tan^{-1}u)=\frac{1}{1+u^2}\frac{du}{dx}$	$\int\frac{1}{1+u^2}du=\tan^{-1}u+C$

Integration by Parts (LIPET, tabular)	$\int u\,dv=uv-\int v\,du$

AP Calculus BC
Differentiation Formulas and Integration Table

Chain Rule	**Product Rule**	**Quotient Rule**
$\frac{d}{dx}f(g(x))=f'(g(x))\cdot g'(x)$	$\frac{d}{dx}(f\cdot g)=f\cdot g'+g\cdot f'$	$\frac{d}{dx}\left(\frac{f}{g}\right)=\frac{g\cdot f'-f\cdot g'}{g^2}$

Differentiation Formula	**Integral**
$\frac{d}{dx}(u^n)=nu^{n-1}\frac{du}{dx}$	$\int u^n du=\frac{1}{n+1}u^{n+1}+C$
$\frac{d}{dx}(e^u)=e^u\frac{du}{dx}$	$\int e^u du=e^u+C$
$\frac{d}{dx}(a^u)=a^u\ln a\frac{du}{dx}$	$\int a^u du=\frac{a^u}{\ln a}+C$
$\frac{d}{dx}(\ln u)=\frac{1}{u}\frac{du}{dx}$	$\int\frac{1}{u}du=\ln\lvert u\rvert+C$; $\int\frac{1}{au+b}du=\frac{1}{a}\ln\lvert au+b\rvert+C$
$\frac{d}{dx}(\log_b u)=\frac{1}{u\ln b}\frac{du}{dx}$	
$\frac{d}{dx}(\sin u)=\cos u\frac{du}{dx}$	$\int\cos u\,du=\sin u+C$
$\frac{d}{dx}(\cos u)=-\sin u\frac{du}{dx}$	$\int\sin u\,du=-\cos u+C$
$\frac{d}{dx}(\tan u)=\sec^2 u\frac{du}{dx}$	$\int\sec^2 u\,du=\tan u+C$
$\frac{d}{dx}(\cot u)=-\csc^2 u\frac{du}{dx}$	$\int\csc^2 u\,du=-\cot u+C$
$\frac{d}{dx}(\sec u)=\sec u\tan u\frac{du}{dx}$	$\int\sec u\tan u\,du=\sec u+C$
$\frac{d}{dx}(\csc u)=-\csc u\cot u\frac{du}{dx}$	$\int\csc u\cot u\,du=-\csc u+C$
$\frac{d}{dx}(\sin^{-1}u)=\frac{1}{\sqrt{1-u^2}}\frac{du}{dx}$	$\int\frac{1}{\sqrt{1-u^2}}du=\sin^{-1}u+C$
$\frac{d}{dx}(\tan^{-1}u)=\frac{1}{1+u^2}\frac{du}{dx}$	$\int\frac{1}{1+u^2}du=\tan^{-1}u+C$

Integration by Parts (LIPET, tabular)	$\int u\,dv=uv-\int v\,du$