Calculus II - Spring 2016 - Dr. Smithies

This is a summary of the most important derivative formulas. Practice these until you know them perfectly and quickly. Practice them in reverse to make sure you know all of the integral formulas.

\[ (cf(x))' = \quad \text{cf}'(x) \]

\[ (f(x) + g(x))' = \quad f'(x) + g'(x) \]

\[ (f(x)g(x))' = \quad f'(x)g(x) + g'(x)f(x) \]

\[ \left( \frac{f(x)}{g(x)} \right)' = \quad \frac{f'(x)g(x) - g'(x)f(x)}{g^2(x)} \]

\[ (f(g(x)))' = \quad f'(g(x))g'(x) \]

\[ (x^n)' = \quad nx^{n-1} \]

\[ (\sin(x))' = \quad \cos(x) \]

\[ (\cos(x))' = \quad -\sin(x) \]

\[ (\tan(x))' = \quad \sec^2(x) \]

\[ (\cot(x))' = \quad -\csc^2(x) \]

\[ (\sec(x))' = \quad \sec(x)\tan(x) \]

\[ (\csc(x))' = \quad -\csc(x)\cot(x) \]

\[ (e^x)' = \quad e^x \]

\[ (a^x)' = \quad \ln(a)a^x \]

\[ (\ln(x))' = \quad \frac{1}{x} \]

\[ (\log_a(x))' = \quad \frac{1}{\ln(a)x} \]

\[ (e^{h(x)})' = \quad h'(x)e^{h(x)} \]

\[ (\ln(h(x)))' = \quad \frac{h'(x)}{h(x)} \]

\[ (\sin^{-1}(x))' = \quad \frac{1}{\sqrt{1-x^2}} \]

\[ (\cos^{-1}(x))' = \quad -\frac{1}{\sqrt{1-x^2}} \]

\[ (\tan^{-1}(x))' = \quad \frac{1}{1+x^2} \]