

Math 16C

Kouba

Differentiation Rules– Review

1.) $D\{c\} = 0$

2.) $D\{mx + b\} = m$

3.) $D\{x^n\} = nx^{n-1}$ POWER RULE

4.) $D\{f(x) \pm g(x)\} = f'(x) \pm g'(x)$ SUM/DIFFERENCE RULE

5.) $D\{f(x) \cdot g(x)\} = f'(x)g(x) + f(x)g'(x)$ PRODUCT RULE

6.) $D\left\{\frac{f(x)}{g(x)}\right\} = \frac{g(x)f'(x) - f(x)g'(x)}{(g(x))^2}$ QUOTIENT RULE

7.) $D\{f(g(x))\} = f'(g(x)) \cdot g'(x)$ CHAIN RULE

8.) $D\{\sin x\} = \cos x$ and $D\{\sin f(x)\} = \cos f(x) \cdot f'(x)$

9.) $D\{\cos x\} = -\sin x$ and $D\{\cos f(x)\} = -\sin f(x) \cdot f'(x)$

10.) $D\{\tan x\} = \sec^2 x$ and $D\{\tan f(x)\} = \sec^2 f(x) \cdot f'(x)$

11.) $D\{\sec x\} = \sec x \tan x$ and $D\{\sec f(x)\} = \sec f(x) \tan f(x) \cdot f'(x)$

12.) $D\{\csc x\} = -\csc x \cot x$ and $D\{\csc f(x)\} = -\csc f(x) \cot f(x) \cdot f'(x)$

13.) $D\{\cot x\} = -\csc^2 x$ and $D\{\cot f(x)\} = -\csc^2 f(x) \cdot f'(x)$

14.) $D\{e^x\} = e^x$ and $D\{e^{f(x)}\} = e^{f(x)} \cdot f'(x)$

15.) $D\{\ln x\} = \frac{1}{x}$ and $D\{\ln f(x)\} = \frac{1}{f(x)} \cdot f'(x)$