Math 251 Derivatives Cheat Sheet

1. $\dfrac{d}{dx}c = 0$
2. $\dfrac{d}{dx}x^n = nx^n$
3. $\dfrac{d}{dx}(cf(x)) = cf'(x)$
4. $\dfrac{d}{dx}[f(x) \pm g(x)] = f'(x) \pm g'(x)$
5. $\dfrac{d}{dx}[f(x) \cdot g(x)] = f'(x)g(x) + g'(x)f(x)$
6. $\dfrac{d}{dx}\left[\dfrac{f(x)}{g(x)}\right] = \dfrac{g(x)f'(x) - f(x)g'(x)}{(g(x))^2}$
7. $\dfrac{d}{dx}\sin(x) = \cos(x)$
8. $\dfrac{d}{dx}\cos(x) = -\sin(x)$
9. $\dfrac{d}{dx}\tan(x) = \sec^2(x)$
10. $\dfrac{d}{dx}\sec(x) = \sec(x)\tan(x)$
11. $\dfrac{d}{dx}\csc(x) = -\csc(x)\cot(x)$
12. $\dfrac{d}{dx}\cot(x) = -\csc^2(x)$
13. $\dfrac{d}{dx}\ln(x) = \dfrac{1}{x}$
14. $\dfrac{d}{dx}e^x = e^x$
15. $\dfrac{d}{dx}a^x = a^x \ln a$
16. $\dfrac{d}{dx}\log_b(x) = \dfrac{1}{x \ln a}$
17. $\dfrac{d}{dx}\ln|x| = \dfrac{1}{x}$
18. $\dfrac{d}{dx}f(g(x)) = f'(g(x))g'(x)$
19. $\dfrac{d}{dx}\arcsin x = \dfrac{1}{\sqrt{1-x^2}}$
20. $\dfrac{d}{dx}\arccos x = -\dfrac{1}{\sqrt{1-x^2}}$
21. $\dfrac{d}{dx}\arctan x = \dfrac{1}{1+x^2}$