

Math 114 Fall 2019  
Calculus I Practice Homework 4.5  
**Do not turn in**

Please be careful about parentheses, especially in the chain rule problems. Leaving out parentheses can make your answers actively wrong, and we will take off points for bad parenthesization.

Note that the odd-numbered problems in Stewart have solutions in the back of the book.

I definitely don't expect you to finish all of these, especially the last couple. But if you want practice, there's plenty here.

1. Naming each derivative rule used explicitly, compute  $\frac{d}{dx}(x^2 \tan(x) + x)$ .
2. Naming each derivative rule used explicitly, compute  $\frac{d}{dx}\sqrt{x} \cos(x) \csc(x)$ .
3. Naming each derivative rule used explicitly, compute  $\frac{d}{dx} \frac{\sqrt{x^2+1}}{\sin(x)}$
4. Stewart 2.4.11
5. Stewart 2.4.26
6. Stewart 2.4.27
7. Stewart 2.5.1
8. Stewart 2.5.3
9. Stewart 2.5.5
10. Stewart 2.5.7
11. Stewart 2.5.13
12. Stewart 2.5.15
13. Stewart 2.5.21
14. Stewart 2.5.23
15. Stewart 2.5.41

16. Stewart 2.8.11

17. Stewart 2.8.13

$$18. \frac{d}{dx} \sqrt[5]{\frac{x^2 \sin(3x)}{\tan(x)}} =$$

$$19. \frac{d}{dx} \tan^4(\sqrt[3]{x^5 + x^3 + 2} + 1). =$$

$$20. \frac{d}{dx} \cos\left(\frac{x^2 - \sqrt{5x^2 + 1}}{x^4 + \sin(x/2)}\right) =$$

$$21. \frac{d}{dx} \left( \sin(4\sqrt{5 \tan(\sqrt[3]{\csc(3x^2)})}) \right)^5 =$$

$$22. \frac{d}{dx} \frac{\tan(x) + \sqrt[3]{\frac{7 \sec(x) + x}{\sqrt{2 \sin(x)}}}}{x^4 \sin(x/5) \cos(x)} =$$

$$23. \frac{d}{dx} \cot^{4/3} \left( \frac{\sqrt{\sin(3x/2) + 1} + x}{\sin(7x^{5/4})} \right) =$$

$$24. \frac{d}{dx} \sqrt[7]{\csc \left( \frac{\cos((x^3 + 1)^2 \sin(x)) + \tan(x)}{\sqrt{5x + 3 \sin(x)}} \right)} =$$