

Main Exercises Week 9

MATH 130: Calculus I, Section 2

Your Name (Print): _____

Follow the general guidelines for the Main Exercises assignments (the salmon colored handout).

Be sure to **staple** together your pages if you have more than one, and include your **name** at the top. Neatness is appreciated, makes a good first impression, and can earn you a bonus point!!! In order to earn the bonus point, you **MUST** have good limit grammar (limit signs and equal signs!)

Due: Monday, March 25, 2019 at 12:20pm

Remember: Your write-up should be **your own**. You may discuss these problems with others, but **you should be alone when you write them up**, using only outlines of any group or Intern discussions. **EXPLAIN** and **SHOW YOUR WORK!!!** Final answers will not receive full credit without supportive explanations (words and/or steps). You may use your own paper on which to write these up.

1. Find the derivatives of the following functions. Show your steps! Simplify your answers by eliminating negative exponents and gathering like terms.

a) $f(x) = \frac{e^x \tan x}{5x^4 + 7x^2 - 9}$

b) $y = \sin(\sqrt[3]{x}) + \sqrt[3]{\sin x}$

2. Consider the following function: $y = e^{x^3+x}$.

a) Find $\frac{dy}{dx}$. Show your steps!

b) Find $\frac{d^2y}{dx^2}$. Show your steps!

c) OPTIONAL BONUS (1pt): Find $\frac{d^3y}{dx^3}$. Show your steps!