

Reading Assignment for Section 3.8

MATH 130: Calculus I, Section 4
Spring Semester 2017

Follow the general guidelines for the Reading Assignment (the salmon colored handout). Be sure to include and label all four standard parts 1,2,3,4 of the Reading Assignment in what you hand in. Be sure to **staple** together pages if you have more than one, and include your **name** at the top of the page. Neatness is appreciated!!!

Due: at the beginning of class on Friday, March 10th

Read:

Section 3.8: Implicit Differentiation, pages 195-199

Notes: This section uses what we learned about the Chain Rule in the last section to do some really amazing things! This reading helps us figure out how to find the rate of change of one variable in terms of another without having a function that explicitly relates the two variables! Our understanding of the notation of derivatives is vitally important here.

Remember that your answers should include complete sentences for every question. Be sure to answer all parts of each question!

Reading Questions for part (1), Response:

- a) What is the difference between an equation that explicitly relates two variables to one another and an equation that implicitly relates two variables? Give two examples of equations in explicit form and two examples of equations in implicit form. Mark which is which clearly.
- b) What are some of the reasons why we might want or need to use implicit differentiation? (Answers are in the text!)
- (c) Suppose we are differentiating implicitly and we want to find the second derivative of y with respect to x , $\frac{d^2y}{dx^2}$. What are the main steps that we need to do? In particular what is different about finding the second derivative in implicit differentiation from finding the second derivative explicitly?

Remember parts 2-4 on the salmon handout!

Optional, but highly recommended: Make flashcards for material in Section 3.8. Sample problems, important steps to remember, etc. could be valuable on flashcards.