

Reading Assignment for Section 4.2

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 Monday, April 3rd

Read:

Section 4.2: What Derivatives Tell Us, pages 245-256

Notes: In the previous section we learned about what local extrema are, but how do we find them? In this section we figure out how to determine whether or not our critical numbers are local minimums and maximums. We also find out about how derivatives can tell us many other features of a function, so many other features that afterwards we will be able to graph functions by hand (no calculators needed!!)

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) Explain carefully why it makes sense to look at the first derivative of a function $f(x)$ to determine where f is increasing and where f is decreasing. (Hint: think about what the derivative is!)
- b) What is concavity? Describe the definition both visually and in terms of the formal mathematical definition.
- c) What is an inflection point?
- d) (i) For what is the Second Derivative Test used? (ii) What does the Second Derivative Test say? (Careful to distinguish between what the second derivative can tell us and what is officially known as the Second Derivative Test.)

Remember parts 2-4 on the salmon handout!

Optional, but highly recommended: Make flashcards for material in Section 4.2. Sample problems, diagrams, definitions of new terms, theorems, etc. could be valuable on flashcards.