Section 4.2: Mean Value Theorem

MATH 130: Calculus I

Due: Friday, April 5, 2019 at 12:20pm   Name (Print): _____

After reading Section 4.2 (pages 250-254 in the text), respond to the following questions **on this handout**. Be sure to staple your pages together before turning it in. **You must answer all parts to all questions to earn full credit!!!** See the salmon homework guidelines handout for details. You are encouraged to take additional notes wherever you are keeping your class notes.

Response Section

1. State Rolle's Theorem (Theorem 4.3).

2. When you wrote Rolle's Theorem above, you saw that the theorem has three hypotheses (or assumptions). (i) Draw the graph of a function that fails one of the hypotheses of the theorem. (ii) State which hypothesis fails. (iii) Does the conclusion of Rolle's Theorem hold for your function? Why or why not?

3. State the Mean Value Theorem (Theorem 4.4).

4. Copy Figure 4.16 including all labels and words. (Note this figure is the one in the margin at the top of page 252.) Do you see how this illustrates the Mean Value Theorem?

5. Explain why the Mean Value Theorem cannot be applied to the function $f(x) = |x|$ on the interval $[-a, a]$ for any $a > 0$. (Note that we say a theorem "cannot be applied" when one of the hypotheses of the theorem fails.)

Questions/Exercise Section

6. Write down at least two questions you have on the reading. OR if you have NO questions, do exercise 30 in Section 4.2 (page 248). Be sure to show all steps for full credit! See the salmon homework guidelines handout for details.

Reflection Section

7. Write **two or three** sentences reflecting on the progress of your recent work in the course. See the salmon homework guidelines handout for details.

Time Section

8. How much time did you spend on this reading assignment? _____