# Section 4.1: Maxima and Minima 

MATH 130: Calculus I

Due: Wednesday, April 3, 2019 at 12:20pm
Name (Print): $\qquad$

After reading Section 4.1 (pages 241-247 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 the definitions of absolute maximum and minimum.
2. State Theorem 4.1: the Extreme Value Theorem.
3. State the definitions of local maximum and minimum values.
4. State Theorem 4.2: the Local Extreme Value Theorem.
5. State the definition of a critical point.
6. Is it true that if $f$ has a local maximum or minimum at $c$, then $f^{\prime}(c)=0$ ? If so, explain in a sentence. If not, draw a picture of a function that contradicts this statement and briefly explain why it fulfills the requirements.
7. Is it true that if $f^{\prime}(c)=0$, then $f$ has a local maximum or minimum at $c$ ? If so, explain in a sentence. If not, draw a picture of a function that contradicts this statement and briefly explain why it fulfills the requirements.
8. Write out the procedure for finding absolute extrema on a closed interval.

## Questions/Exercise Section

9. Write down at least two questions you have on the reading. OR if you have NO questions, do exercise 30 in Section 4.1 (page 248). Be sure to show all steps for full credit! See the salmon homework guidelines handout for details.

## Reflection Section

10. 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

11. How much time did you spend on this reading assignment? $\qquad$
