

# Reading Assignment for Section 2.6

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 Wednesday, February 15th

Read:

Section 2.6: Continuity, pages 98-108

Notes: Sometimes we talk about functions being “nice”. This usually means that they are continuous. If functions are continuous, then there are many things we can say about them and many ways we may manipulate them. But many functions are not continuous. How do we determine whether or not they are continuous, and if they are not continuous, how “bad” are they? Are some functions considered less continuous than others? Think about what the word “continuity” means in everyday language. Do those ideas transfer to the ideas here in calculus?

**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 does it mean for a function  $f(x)$  to be continuous at a point  $a$ ? Describe this **in your own words**.

b) (i) What are the three items on the continuity checklist? (ii) Assuming the order of the checklist in the book, draw a diagram of a function that fails the first item on the checklist for some value  $a$ , but NOT the second at  $a$ . Explain. (iii) Assuming the order of the checklist in the book, draw a diagram of a function that fails the second item on the checklist at  $a$ , but NOT the first at  $a$ . Explain. (iv) Assuming the order of the checklist in the book, draw a diagram of a function that fails the third item on the checklist at  $a$ , but NOT the first or second (that is, both the first and second do hold at  $x = a$ ). Explain.

c) Many different kinds of functions are discussed throughout the section. On what intervals are these functions continuous? You should briefly describe some specific kinds of functions and also attempt a general statement about groups of functions.

Remember parts 2-4 on the salmon handout!