

Reading Assignment for Section 2.7

MATH 130: Calculus I, Sections 2 and 3
Fall Semester 2013

Follow the general guidelines for the Reading Assignment (the salmon colored handout).

Be sure to include and label all four standard parts a,b,c,d of the Reading Assignment in what you hand in. Be sure to **staple** together each assignment, and include your **name** and which **section** of calculus you are in at the top.

Due: at the beginning of class on Wednesday, September 11th

Read:

Section 2.7, pages 107-112 (note that this is NOT the entire section)

This is very theoretical and challenging material for some. Don't let the Greek letters scare you, they are cool and just represent unknown constants. Remember the hand-wavy definition of a limit that we gave in class on Monday? We want to make that more exact, and that is what is happening in this section. Feel free to review your definitions of absolute values on your yellow prerequisites sheet if you feel absolute values are causing you confusion here.

Reading Questions for part (a):

1. State the precise definition of $\lim_{x \rightarrow a} f(x) = L$. Compare this definition to the one we put on the board in class on Monday.
2. The precise definition includes the statement " $|f(x) - L| < \epsilon$ whenever $0 < |x - a| < \delta$ ". Write this as an if-then statement. In other words, you can say that we are given a statement that says "A whenever B". Is that the same as "if A, then B", or "if B, then A"? Be sure to write out the statement using the original phrases (i.e. not just A and B). Explain briefly.
3. Does the set $\{x : 0 < |x - a| < \delta\}$ include the point $x = a$? Explain.
4. Suppose that you find a value of δ such that $|f(x) - L| < \epsilon$ whenever $0 < |x - a| < \delta$. If you have found one, are there others? Why?

Remember parts b-d on the salmon handout!