

# Reading Assignment for Section 3.7

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, March 6th

Read:

Section 3.7: The Chain Rule!, pages 185-191

Notes: We have learned how to take the derivative of real number powers of  $x$ , of  $e^x$ , and of products and quotients involving these functions. Now we expand our knowledge even further to compositions of functions! Check out the proof of the Chain Rule at the end of the section!

**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) Write a sentence or two that explains completely in words, using no symbols, what the chain rule is and how it works.
- b) There is a trigonometric formula for what  $\sin 2x$  is equal to. If you don't already know it, find it in the front of your text. Now use the product rule to find the derivative of  $\sin 2x$  using that formula. Does your answer match up to what you would get if you just applied the chain rule? Explain carefully. (Note: they **SHOULD** match up. You may need to use another trigonometric formula to make it look like they do.)
- (c) The function  $k(x) = \sec^5(4x^3 - 12)$  is the composition of **THREE** functions. Find  $f(x)$ ,  $g(x)$  and  $h(x)$  such that  $k(x) = f(g(h(x)))$ . Show your work clearly. (Note: I am not asking you to differentiate this yet!)

Remember parts 2-4 on the salmon handout!

**Optional, but highly recommended: Make flashcards for material in Section 3.7. Certainly you should have one for the Chain Rule!**