

Reading Assignment for Section 7.4

MATH 131: Calculus II, Sections 2 and 3
Fall Semester 2015

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 at least the first page. Neatness is expected!!!

Due: by the beginning of class on Friday, October 23rd

Read:

Section 7.4 pages 531-537: Trigonometric Substitution!!! Do the Quick Checks along the way! Check your answers to them at the end of the Exercises for Section 7.4!

Notes:

This is REALLY COOL STUFF!!! Again, don't be shy of the trigonometric functions! Here we take an algebraic function and change the variable to make it into a trigonometric function. Sound crazy? Maybe, but it works beautifully! As you learn this cool approach, still remember your basic tools in your toolbox. For example, even though trigonometric substitution is really cool, you don't need it to solve $\int_0^6 \sqrt{36 - x^2} dx$!

Remember that your answers should include complete sentences for every question. Be sure to address all parts of each question.

Reading Questions for part (1):

- a) What kinds of integrals is trigonometric substitution particularly useful for? You might look through the examples and see what is common in all or almost all of the examples. Why might you choose to use trigonometric substitution?
- b) In first semester calculus we had situations where we needed to figure out how to express one trigonometric function in terms of x by using another trigonometric function and a right triangle. We will need to do this a lot with trigonometric substitution. If $x = 4 \tan \theta$, express $\sin \theta$ in terms of x . Be sure to include a diagram. (There are several examples of this in the text.)

Remember parts 2-4 on the salmon handout! **Reread the directions for these parts to be sure that you are answering the questions.** If you have lost your salmon handout, there is a link on our website to the Homework Guidelines.