Main Exercises Week 4

MATH 131: Calculus II, Section 1 Your Name (Print): _____

Follow the general guidelines for the Main Exercises assignments (the salmon colored handout). Be sure to **staple** together your pages if you have more than one, and include your **name** at the top. Neatness is appreciated and makes a good first impression!!!

Due: at the beginning of class on Wednesday, February 12th

Remember: Your write-up should be **your own**. You may discuss these problems with others, but **you should be alone when you write them up**, using only outlines of any group or Intern/TA discussions. Be sure to show your work! How you get there is more important than the final answer. Make sure you read the complete question with all the directions and hints before starting a problem.

1. Use the Fundamental Theorem of Calculus (**not** the definition of the definite integral) to evaluate:

$$\int_4^9 \frac{x - \sqrt{x}}{x^3} dx$$

2. Find the **derivative** of $g(x) = \int_{\tan x}^{x^2} \frac{1}{\sqrt{2 + t^2}} dt$. (This uses similar ideas to the challenge problem we did in group work last Wednesday.)

3. Do Problem 28 from Section 5.4 in the text (page 354). You may have already worked on this one in group work on Monday! In addition to what is asked in the text, start by making sure this question makes sense to you and answer the following: Why do they use the interval $[-\pi, \pi]$? Evaluate y at $-\pi$ and π to help answer this part of the question.