Main Exercises Week 1

MATH 131: Calculus II, Section 2 and 3 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 Monday, September 7th

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 discussions.

1. (a) Sketch the graph of $f(x) = \dfrac{1}{x}$ on the interval $(0, 4)$.

   (b) Suppose we want to estimate the area under f on the interval $\left[\dfrac{1}{2}, 3\right]$ using five rectangles. Calculate Δx and the grid/sample points.

   (c) Illustrate the left and right Riemann sums on your graph, and determine which Riemann sum underestimates and which sum overestimates the area under the curve.

   (d) Calculate both the left and right Riemann sums. Be sure to show the details of your calculations.

2. REVIEW: Solve the following indefinite integral: $\displaystyle\int \sec\theta(\cos^2\theta + \cos\theta + \sec\theta)d\theta$. Remember to show each step carefully.