

Main Exercises Week 14

MATH 130: Calculus I, Section 4

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, makes a good first impression, and can earn you a bonus point!!!

This homework is particularly focused on material in Section 4.4 and 4.7

Due: at the beginning of class on Friday, April 28th

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. **EXPLAIN** and **SHOW YOUR WORK!!!** Final answers will not receive full credit without supportive explanations.

1. Evaluate the following limit showing all details including stating all indeterminate forms:

$$\lim_{x \rightarrow 0} (e^{6x} + x)^{\frac{1}{x}}$$

2. A rectangular poster is to have an area of 180 in^2 with 1-inch margins at the bottom and sides and a 2-inch margin at the top. What dimensions will give the largest printed area?

Be sure to include all steps in your solution. Note 1: there are two different areas to consider here – the area of the whole poster and the area of the printed portion. Note 2: you will have some choices to make as to what your variables represent; it is beneficial to make your constraint equation the LESS complicated equation and this can be done with the choice of variable assignments.