Main Exercises Week 14

MATH 130: Calculus I, Section 2 & 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, makes a good first impression, and can earn you a bonus point!!!

Due: at the beginning of class on Friday, April 27th

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. You may use your own paper on which to write these up.

1. Evaluate the following limit. Be sure to show each step carefully and show all details of each step including stating all indeterminate forms and making it clear when you use L'Hôpital's Rule.

$$\lim_{x \to 0^+} (\sin x + e^{7x})^{\frac{5}{x}}$$

2. An open box with a rectangular base is to be constructed from a rectangular piece of cardboard 16 inches wide and 21 inches long by cutting a square from each corner and then bending up the resulting sides. Find the size of the corner square that will produce a box having the largest possible volume.