Math 134 **Honors Accelerated Calculus** **Fall 2010**

Group Assignment #13: Due 11/12/10

Do the following problems from [SHE]:

- Exercises 4.4: #38, 43, 45
- Exercises 4.5: #38, 62
- Exercises 4.6: #35, 36
- Exercises 4.8: #20, 32

Prove the following theorem:

- **Theorem A:** Let f be a function that is continuous on $[0, \infty)$ and differentiable for all $x > 0$. Suppose that $f'(x)$ satisfies the condition

  $$a \leq f'(x) \leq b \text{ for all } x > 0.$$

  Then for all $x > 0$,

  $$f(0) + ax \leq f(x) \leq f(0) + bx.$$

  [Hint: use the Mean Value Theorem.]