Math 220 **Quiz 8 (take-home)** **Fall 2011**

Name _____

- You may work with other students in this class. However each student should write up solutions separately and independently – nobody should copy someone else's work.
- You may use your notes or the textbook.
- Computers are not allowed on any problem. You may use a calculator only for basic arithmetic.
- You must show sufficient work to justify each answer.
- The quiz should be turned in to your TA at the beginning of your discussion section meeting on Thursday, October 13th.
- Be sure that the pages are nicely stapled – do not just fold the corners.
- **Note to TAs and Tutors – you should not help students with these specific problems or go over solutions until after 4pm Thursday.**

1. (3 points) Determine the x-value for each inflection point on the graph of the following function.

$$f(x) = 3x^5 - 5x^4 - 80x^3 + 360x^2 + 1000x + 850$$

2. (3 points) Suppose the function f has first derivative as shown below.

$$f'(x) = e^{2x}\left(x^2 + 25\right)(x-3)^2\left(x^2 - 64\right)(2x-1)$$

List each interval upon which the function f is decreasing.

3. (4 points) A farmer wishes to enclose a rectangular pen with area 100 square feet next to a road. The fence along the road is to be reinforced and costs \$34 per foot. Fencing that costs \$16 per foot can be used for the other three sides. What dimensions for the pen will minimize the cost to the farmer? What is that minimum cost?