## Math 251: Pledged Set 9

Due: November 4, 2008

This is a pledged set. Therefore, no outside help from book, calculator, or other people.

1. Classify the critical points of

$$x^3 + 3x^2 - 24x.$$

2. Calculate

$$\lim_{x \to \infty} \frac{\ln x}{\sqrt{x}}.$$

- 3. Find a positive number such that the sum of the number and its reciprocal is as small as possible.
- 4. A box with a square base and open top must have a volume of 32,000cm<sup>3</sup>. Find the dimension of the box that minimize the amount of material used.
- 5. Calculate

$$\lim_{x \to \infty} x^{1/x}$$