Math 220 (section ???) **Quiz 3** **Spring 2011**

Name _____

- No calculators allowed.
- Show sufficient work to justify each answer.
- You have 15 minutes for this quiz.

1. (2 points) Show precisely how the *Intermediate Value Theorem* is used to prove that the equation $x^3 - 2x - 3 = 0$ has at least one real solution.

2. (2 points) Evaluate $\cot\left(\sin^{-1}\left(\frac{2}{3}\right)\right)$.

3. (2 points each) Evaluate the following limits.

(a) $\lim_{x \to 0.5^+} \dfrac{\ln x}{2x - 1}$

(b) $\lim_{x \to 2} \dfrac{x^2 + 3x - 10}{x^2 - 4}$

(c) $\lim_{x \to \infty} \dfrac{6 + 8e^x}{2e^x}$