

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 $x^3 - 5x - 7 = 0$ has at least one real solution.

2. (2 points) Evaluate $\cot\left(\cos^{-1}\left(\frac{4}{7}\right)\right)$.

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

(a) $\lim_{x \rightarrow 0.25^+} \frac{\ln x}{4x - 1}$

(b) $\lim_{x \rightarrow 1} \frac{x^2 + 3x - 4}{x^2 - 1}$

(c) $\lim_{x \rightarrow \infty} \frac{3 + 10e^x}{2e^x}$