

Name: _____ Section: _____

Answer all questions and show your work. Unsupported answers may receive *no credit*. You may not use a calculator on this quiz. Allow 15 minutes for the quiz.

1. (a) (2 points) Find an improper integral so that $\sum_{k=N}^{\infty} \frac{1}{k^2} \leq \int_A^{\infty} f(x) dx$.
- (b) (3 points) Use your answer to part a) to find N so $\sum_{k=N}^{\infty} \frac{1}{k^2} \leq \frac{1}{300}$.

2. (a) (2 points) For which p does the p -series $\sum_{n=1}^{\infty} \frac{1}{n^p}$ converge?

- (b) (3 points) Use the limit comparison test to determine if the series $\sum_{n=1}^{\infty} \frac{2n^2 + 3n + 1}{n^5 + 5n^3 + 2}$ is convergent. Your answer should give the series you use for comparison.