QUIZ 9 - MATH 152 Your NAME:

Read each problem **very carefully** before starting to solve it. Each problem is worth 3 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Explain informally why the integral test is applicable and then use it to determine whether the series $\sum_{n=1}^{\infty} \frac{\ln n}{n^2}$ converges or diverges.

2. Use the comparison test to check whether the series $\sum_{n=4}^{\infty} \frac{\sqrt{n}}{n-3}$ converges or diverges.

3. Use the limit comparison test to prove convergence or divergence of $\sum_{n=1}^{\infty} \frac{1}{\sqrt{n} + \ln n}.$

4. Determine whether the series $\sum_{n=1}^{\infty} \frac{(-1)^n}{\sqrt[3]{n}}$ converges (a) absolutely, (b) conditionally, (c) not at all.

5. Use the ratio test to determine whether the series $\sum_{n=1}^{\infty} \frac{e^n}{n!}$ converges or diverges.