

Math 134

Quiz 9 Sample

May 4, 2011

You may use your calculator and integral tables. Indicate any calculations you do with the calculator, indicate which formula you use from the tables and the values of any constants that appear in the formula, and show your algebra whenever calculations are done by hand.

1. Use the integral test to determine whether the following series converges or diverges:

$$\sum_{n=2}^{\infty} \frac{\ln(n)}{n}$$

2. Find the radius and interval of convergence of

$$\sum_{n=1}^{\infty} \frac{3nx^n}{5^n}$$

3. (a) What is the MacLaurin series for $\sin(x)$?
- (b) Use your answer to (a) to find a series for $f(x) = \frac{\sin(x)}{x}$.
- (c) Based on your answer to (b), how should $f(x) = \frac{\sin(x)}{x}$ be defined when $x = 0$?