

Math 116-101 or 102 (circle one) (Spring 2012)

Name: \_\_\_\_\_

Quiz 5: §9.3-9.5; 10.1-10.2

6/12/2012

Show all work and include units where appropriate. You have 30 minutes to complete this quiz. (25 pts)

1. Determine the interval of convergence of the power series  $\sum_{n=1}^{\infty} \frac{5^n(x-2)^n}{n^2+1}$  (5 pts)

2. Does  $\sum_{n=2}^{\infty} \frac{(-1)^n}{\ln(n)}$  converge absolutely, converge conditionally, or diverge? Justify your answer. (5 pts)

3. Determine whether each of the following series converges or diverges. Justify your answer. (5 pts each)

(a) 
$$\sum_{n=1}^{\infty} \frac{(-1)^n(n-3)}{5n+2}$$

(b) 
$$\sum_{n=1}^{\infty} \frac{\sin(\frac{1}{n})}{n^2 \cos(\frac{1}{n})}$$

4. Find the degree 3 Taylor polynomial for  $f(x) = \sqrt[3]{1+x}$  around  $x = 0$ . (5 pts)