Math 236 Spring 2001 Name: _____

Quiz 10 (4/26) Circle one: 03/05

You have 20 minutes to take this quiz. Each problem will be graded for clarity of work as well as correctness, so show all work **clearly and in order**. Write your final answers in the boxes provided. Please note that there are problems on both the front and the back of this page.

All of the problems on this quiz are similar to homework problems.

1. **(***10 points***)** Consider the power series $\sum \frac{1}{k2^k}(x+1)^k$.

(**a**) Find the radius of convergence of this power series. Justify your answer.

$r =$ ☐

(**b**) Find the interval of convergence of this power series. Justify your answer.

Interval of convergence is: ☐

2. (*10 points*)

a. (*6 pts*) Calculate the $n = 3^{\text{rd}}$ Taylor polynomial for $f(x) = \ln x$ around the point $a = 2$. Calculate from scratch, not from any memorized Taylor series. Show your work!

$P_{n=3,a=2}(x) =$ [ ]

b. (*4 pts*) Give a numerical bound on the error you would have if you used the Taylor polynomial above to approximate $\ln 2.4$. (Hint: Use the Lagrange form of the remainder.)

Error $<$ [ ]