Math 182 Quiz 13 Name: _____

Take home due April 11, 2003

You may work in groups. Each group should only turn in one quiz will all names on it.

Show all work for credit.

Leave all answers as exact answers unless otherwise stated.

1. Find the radius of convergence for each of the following series, and determine if the endpoints are included in the interval.

   (a) $\sum_{n=1}^{\infty} \frac{x^n}{n3^n}$

   (b) $\sum_{n=1}^{\infty} n!(2x-1)^n$

2. Find the power series representation for the following series, and find the radius of convergence.

   (a) $f(x) = \dfrac{1}{1+9x^3}$

   (b) $f(x) = \ln(1+x)$
   (Hint: See example 6 on page 748)

3. Find a power series representation of $\displaystyle\int \sin\left(\frac{\pi}{x}\right) dx$ about the point $x = 1$ (which means, let $a = 1$ in the formula).