NAME: _____

MATH 12003 **HOMEWORK #6 (20 pts)** **FALL 2009**

SHOW ALL WORK FOR FULL CREDIT — PLEASE CIRCLE YOUR FINAL ANSWER

DUE: TUESDAY, OCTOBER 27, 2009 AT THE BEGINNING OF CLASS

1. (2 pts each) Determine whether the series is absolutely convergent, conditionally convergent, or divergent.

(a) $\displaystyle\sum_{n=1}^{\infty} \frac{\sin 4n}{4^n}$

(b) $\displaystyle\sum_{n=4}^{\infty} \frac{3 - \cos n}{n^{2/3} - 2}$

Homework Score: Current Grade:

$\frac{\quad}{20}$ $\frac{\quad}{369} =$

(c) $\displaystyle\sum_{n=1}^{\infty} \frac{(-1)^n}{n \ln n}$

2. (2 pts each) Test the series for convergence or divergence.

(a) $\displaystyle\sum_{n=1}^{\infty} \frac{2^n n!}{(n+2)!}$

(b) $\displaystyle\sum_{n=1}^{\infty} (-1)^n \frac{n}{n^2+25}$

(c) $\displaystyle\sum_{n=1}^{\infty}(-1)^n\left(\frac{n+5}{7n}\right)^n$

(d) $\displaystyle\sum_{n=1}^{\infty}\frac{\cos(n/2)}{n^2+4n}$

(e) $\displaystyle\sum_{n=1}^{\infty}\frac{e^{1/n}}{n^2}$

3. (2 pts each) Find the radius and interval of convergence of the following power series.

(a) $\displaystyle\sum_{n=1}^{\infty} \frac{4}{n5^n}\, x^n$

(b) $\displaystyle\sum_{n=1}^{\infty} \frac{n^2}{4^n}\, (x-7)^n$