Math 181 Name _____
Fall, 2008

Homework #15
Due Wednesday, November 5
No late papers accepted! No excuses!

1. A ball is dropped from a height of 4 meters. Each time it strikes the pavement after falling from a height of h meters, it rebounds to a height of $0.75h$ meters. Find the total distance the ball travels up and down.

2. Determine the convergence or divergence of the series. Give reasons for your answers.

a) $\sum_{n=1}^{\infty} \frac{n}{e^{n^2}}$

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

c) $\sum_{n=2}^{\infty} \frac{(-1)^n n}{\ln n}$

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

3. Determine whether the series converges conditionally or absolutely or diverges.

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

b) $\sum_{n=1}^{\infty} \frac{(-1)^n}{\sqrt{n}}$

4. Determine the number of terms required to approximate the sum of the series with an error of less than 0.001.

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