

# Calculus III Honors Spring 2010

## Homework 6

Due: Wed. Mar 10, start of class

**Instructions:** Please read the homework policies and guidelines posted on the course webpage. You may *not* use a calculator (or computer) except where stated. Make sure to write your name, course and section numbers in the top right corner of your solution set, as well as the assignment number on top. Page/section numbers refer to the course text.

## Reading

Section 12.2

## Written Assignment

Total: 100 points. Each problem is worth 5 points unless otherwise noted.

**Problem A:** Write the following expressions in summation notation:

(a)  $4 + 9 + 16 + 25 + 36$

(b)  $1 + 4 + 7 + 10 + 13 + \dots$

(c)  $1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \frac{1}{5} - \dots$

**Problem B:** Compute at least the first 5 partial sums for each of the following infinite series. For each series, guess whether it converges or diverges, and if it appears to converge, guess the limit. (You may use a calculator)

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

(b)  $\sum_{n=2}^{\infty} \frac{1}{\ln(n^3)}$

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

**Section 12.2:** 9, 10, 11, 12, 19, 20, 21, 23, 34, 35, 36, 38, 47, 49, 55, 63, 65, 73