

**Problem Set 5****Calculus 2****Due 11/18/05**

You are encouraged to work in groups of two to four on this assignment and make a single group submission. Each problem is worth 5 points. For full credit indicate clearly how you reached your answer. All work must be legible and submitted on clean paper without ragged edges.

1. Find the sum of the series  $\sum_{n=1}^{\infty} \left( \frac{1}{n^3} - \frac{1}{(n+1)^3} \right)$ .

2. Determine whether the series  $\sum_{n=0}^{\infty} \frac{1}{n! + n}$  converges or diverges.

3. Determine whether the series  $\sum_{k=0}^{\infty} \frac{(-1)^k}{3k+1}$  converges or diverges.

4. Determine whether the series from problem 3 is absolutely convergent.

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