**Section (circle one): 1 2 3 4 5 6**

Score:

**Team (circle one): a b c d e f**

**SM122 – Test #1–Fall 2010**

**Box/circle your final answer.**

**YOU MUST SHOW ALL WORK FOR FULL CREDIT.**

1. (10 pts) Find the formula for the general term of the sequence (assume that the pattern of the first few terms continues and that n starts at 0). What is the sum of all of the elements of this sequence?

|  |  |  |
| --- | --- | --- |
| **No marks on this table** | | |
| **WA (10 pts)** |  | |
| **1 (10pts)** | **333** | |
| **2 (10 pts)** | **333** | |
| **3 (10 pts)** | **333** | |
| **4 (10 pts)** |  | |
| **5 (10 pts)** |  | |
| **6 (10 pts)** |  | |
| **7 (10 pts)** |  | |
| **8 (20 pts)** |  | |
| **cumm.** | **333** | **333** |

1. (10 pts) Consider the sequence .
   1. Determine whether the sequence converges of diverges.
   2. If the sequence converges, find the limit.
   3. Would a series based on this sequence converge? Why?
2. (10 pts) Given the power that the power series of find the power series of .
3. (10 pts) Test the series for convergence. If it converges, find the limit.
4. (10 pts) Find the radius and interval of convergence of the power series . Do not test the endpoints.

.

1. (10 pts) Find the first three non-zero terms of the Maclaurin series for . Use this to estimate to four decimal places. Recall for a Maclaurin series:
2. (10 pts) Given the Macluarin Series , find the Macluarin Series for . Write out the first three terms of the series.
3. (20 pts) Find the first three terms of the Taylor polynomial for centered on . What is the maximum error (to 4 decimal places) if the interval of interest is . Recall for a Taylor series centered on :