Math 181 **Test 2** **November 11, 1991**

NAME: (PRINT) ________________________________ SSN: ________________

1. Find the length of the curve given by $x = t^3$, $y = 3t^2$, $0 \leq t \leq 1$.

2. Sketch the graph of $r = 3\sin 2\theta$ and find the area of one leaf.

In questions 3 and 4 determine whether the series converges or diverges, giving reasons.

3. $\displaystyle\sum_{n=1}^{\infty} \frac{n+1}{\sqrt{n^5+n^3-1}}$

4. $\displaystyle\sum_{n=2}^{\infty} \frac{1}{n \log n}$

5.Compute: $\displaystyle\int_2^5 \sqrt{5+4x-x^2}\,dx$

6. Determine all values of x for which the following series converges.

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