Calc II Problem sheet

Thursday, July 8

1. Write down a couple of complete sentences using the comparison test to show that
$$\sum_{n=1}^{\infty} \frac{\sin\left(n^3\right)}{n^4}$$
converges absolutely.

2. Write down a couple complete sentences using the alternating series test to show that
$$\sum_{n=1}^{\infty} (-1)^{n+1} \frac{\ln(n)}{n}$$
converges conditionally.

3. Suppose we'd like to approximate
$$\sum_{n=1}^{\infty} (-1)^{n+1} \frac{n}{n^2+1}$$
by truncating the sum to obtain a finite sum of the form
$$\sum_{n=1}^{N} (-1)^{n+1} \frac{n}{n^2+1}.$$
How large does N have to be to ensure that our approximation is within 0.0001 of the actual value?