

Math 166: Honors Calculus II

Name: _____

Quiz 9 *April 6, 2000*

1. Calculate the value of each of the following series.

a) $\sum_{n=0}^{\infty} \frac{2 + (-1)^n}{5^{n+1}}$

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

[Hint: first find the partial fraction decomposition of $\frac{n+2}{n(n+1)}$ then use telescoping sums.]

2. Determine whether each of the following series converges or diverges.

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

b) $\sum_{n=0}^{\infty} \frac{\sin(n^2) + 1}{n^2 + 1}$

3. Use the Comparison Test to prove the Limit Comparison Test.