Math 166: Honors Calculus II Name:_____
Quiz 9 *Apr. 6, 1995*

1. a) Prove that $\sum_{n=0}^{\infty} x^n$ converges to $\frac{1}{1-x}$ if $|x| < 1$.

b) Prove that $\sum_{n=1}^{\infty} \frac{1}{n}$ diverges.

2. Prove that the series converges to the indicated sum.

a) $\sum_{n=1}^{\infty} \frac{2^{n-1} + 3^{n+1}}{4^n} = \frac{19}{2}$.

b) $\sum_{n=2}^{\infty} \log(1 - \frac{1}{n^2}) = -\log(2)$. (Hint: Use telescoping series).