

Math 166: Honors Calculus II

Name: _____

Quiz 10 *April 12, 2000*

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

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

b)
$$\sum_{n=0}^{\infty} \left(\frac{n+2}{3n+4} \right)^{n^2}$$

c)
$$\sum_{n=1}^{\infty} \sin \left(n\pi + \frac{\pi}{n} \right)$$

2. Prove that $\sum_{n=1}^{\infty} \frac{1}{n^s}$ converges for $s > 1$ and diverges for $s \leq 1$.