Name:	**A#:**	**Section:**

1. Define precisely what it means to say that $\sum_{n=1}^{\infty} a_n = S$.

2. Determine whether each of the following series converges or diverges. If a series converges, then find its value.

   (a) $\sum_{n=0}^{\infty} 5e^{-n}$

   (b) $\sum_{n=1}^{\infty} \frac{4n+1}{5n-1}$

   (c) $\sum_{n=0}^{\infty} \frac{2^{3n+1}}{3^{2n-1}}$

   (d) $\sum_{n=1}^{\infty} \frac{2^n}{n^4}$

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

(f) $\displaystyle\sum_{n=1}^{\infty} \frac{2^n - 4^n}{3^n}$

(g) $\displaystyle\sum_{n=1}^{\infty} \frac{3^n - 4^n}{5^n}$

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