Math 101 – WORKSHEET 29
THE RATIO TEST

(1) If the series converges, find its sum. Otherwise, state that it diverges.

(a) $\sum_{n=0}^{\infty} \frac{(-1)^n 3^{2n+3}}{11^n}$

(b) $\sum_{n=1}^{\infty} (-1)^{n+2} \frac{3^{3n+2}}{11^n}$

(2) Decide whether the following series converge:

(a) $\sum_{n=0}^{\infty} \frac{n}{2^n}$

(b) $\sum_{n=0}^{\infty} \frac{n!}{2^n}$

(c) $\sum_{n=0}^{\infty} \frac{2^n}{n!}$

(d) For which values of x does $\sum_{n=0}^{\infty} n x^n$ converge?