## Math 101 - WORKSHEET 29 <br> THE RATIO TEST

(1) If the series converges, find its sum. Otherwise, state that it diverges.
(a) $\sum_{n=0}^{\infty} \frac{(-1)^{n} 3^{2 n+3}}{11^{n}}$
(b) $\sum_{n=1}^{\infty}(-1)^{n+2} \frac{3^{3 n+2}}{11^{n}}$
(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?

