Exercise 1. Consider the sequence $a_n = (3n+1)!$.

i) Find a_0, a_1 and a_2.
ii) Simplify the consecutive ratio $\frac{a_{n+1}}{a_n}$ into a polynomial in terms of n.

Exercise 2. Consider the series $\sum_{n=0}^{\infty} \frac{2}{n^n - 2}$. Determine if the series converges or diverges.

Exercise 3. Analyze the series $\sum_{n=1}^{\infty} \frac{(n!)^2}{(2n)!}$ and determine if it converges or diverges.