Mathematics 1120H – Calculus II: Integrals and Series
Trent University, Winter 2024
Assignment #10
Series of Power
Due* just before midnight on Thursday, 28 March.

1. For what values of x does the series $\displaystyle\sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+1}}{(2n+1)!}$ converge? *[4]*

2. What function does the series $\displaystyle\sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+1}}{(2n+1)!}$ equal when it converges? *[1]*

3. For what values of x does the series $\displaystyle\sum_{n=0}^{\infty}(n+1)x^n$ converge? *[4]*

4. What function does the series $\displaystyle\sum_{n=0}^{\infty}(n+1)x^n$ equal when it converges? *[1]*

A mathematics nursery rhyme (and cautionary tale):

Solomon Grundy
Conjectured on Monday
Hypothesized Tuesday
Existed on Wednesday
Constructed on Thursday
Uniquely on Friday
Contradicted on Saturday
Disproved on Sunday
And that was the end
    of Solomon Grundy.

From *Seven Years of Manifold 1968-1980*.