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AMTL 100 (CALCULUS)
Quiz 1

Date: 14/11/2024 Total Marks: 15 Time: 30 mins

1. Consider the power series

$$\sum_{n=1}^{\infty} \frac{2^n (n!)^2}{(2n)!} x^n$$

   (a) Find the radius of convergence R of the above power series. [3]

   (b) Does the series converge for $x = R$? Justify. [2]

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2. Write the first four terms in the binomial series for $(1+x)^{-1/3}$. [5]

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3. Find the Maclaurin series of $f(x) = \ln(1 + x) - \ln(1 - x)$. [5]