Problem 1. Find the radius of convergence and the interval of convergence of
\[ \sum_{n=1}^{\infty} n^n (x + 1)^n. \]

Problem 2. Find the radius of convergence and the interval of convergence of
\[ \sum_{n=4}^{\infty} (-1)^n \frac{(3x - 1)^n}{n \sqrt{\ln(n)}}. \]