1. Determine the convergence of the following series. State which test you are using and justify your answer.

(a) \[ \sum_{n=1}^{\infty} \frac{n + 4}{n^3 - 5n^2 - 3}. \]

(b) \[ \sum_{n=0}^{\infty} \frac{1}{n^2 + 1}. \]
2. Find the radius and interval of convergence for the power series

\[ \sum_{n=0}^{\infty} \frac{(x - 2)^n}{4^n}. \]

3. **Bonus:** Why?