

8. [7 points] Consider the power series $\sum_{n=1}^{\infty} \frac{(x+2)^n}{3^n n}$.

a. [2 points] At which x -value is the interval of convergence of this power series centered?

b. [5 points] The radius of convergence for the power series $\sum_{n=1}^{\infty} \frac{(x+2)^n}{3^n n}$ is 3. Find the interval of convergence for this power series. Thoroughly justify your answer.

9. [5 points] Find the radius of convergence for the power series $\sum_{n=1}^{\infty} \frac{(2n)!}{(n!)^2} x^{2n}$