

1. Find the radius of convergence and interval of convergence of $\sum_{n=1}^{\infty} \frac{(-1)^n 2^n}{5^{n+3}} x^n$
2. Find the radius of convergence and interval of convergence of $\sum_{n=1}^{\infty} \frac{x^n}{n^2 3^n}$
3. Find the radius of convergence and interval of convergence of $\sum_{n=1}^{\infty} \frac{x^n}{\sqrt{n}}$
4. Find the radius of convergence and interval of convergence of $\sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{n(2n+1)^3} (x-3)^n$
5. Find the radius of convergence and interval of convergence of $\sum_{n=1}^{\infty} \frac{(2-x)^n}{n^2 4^{3n-1}}$
6. Find the radius of convergence and interval of convergence of $\sum_{n=1}^{\infty} \frac{(2x+3)^n}{\sqrt{n+1}}$
7. Find the radius of convergence and interval of convergence of $\sum_{n=1}^{\infty} \frac{(6x-3)^{2n}}{n^3}$
8. Find the radius of convergence and interval of convergence of $\sum_{n=1}^{\infty} \frac{(x+1)^n}{n!}$
9. Find the radius of convergence and interval of convergence of $\sum_{n=1}^{\infty} 3^n n^3 x^n$