

Assignment 12 answers

page 648, #8. $R = 1/2$

page 648, #26. $f(x) = \sum_{n=0}^{\infty} \frac{(-1)^n (n+3)!}{3! n!} (x-1)^n$

page 661, #4. $y(x) = a_0 \sum_{n=0}^{\infty} \frac{x^{3n}}{3^n n!}$

page 661, #18. Both have radius of convergence $R = \infty$.

$$y_1(x) = 1 - x^2 + \frac{x^4}{3} - \frac{x^6}{3 \cdot 5} + \frac{x^8}{3 \cdot 5 \cdot 7} - \dots$$

$$y_2(x) = x - \frac{x^3}{2} + \frac{x^5}{2 \cdot 4} - \frac{x^7}{2 \cdot 4 \cdot 6} + \dots$$

page 661, #22. The radius of convergence for either series satisfies $R \geq 1$.

$$y_1(x) = 1 + x^2 - \frac{x^3}{3} + \dots \quad y_2(x) = x - \frac{x^2}{2} + \frac{x^3}{2} + \dots$$