

25. Converge absolutamente pelo teste da integral.
 27. Diverge; $a_n \rightarrow 0$
 29. Converge absolutamente pelo teste da razão.
 31. Converge absolutamente; $\frac{1}{n^2 + 2n + 1} < \frac{1}{n^2}$
 33. Converge absolutamente, já que $\left| \frac{\cos n\pi}{n\sqrt{n}} \right| = \left| \frac{(-1)^{n+1}}{n^{3/2}} \right| = \frac{1}{n^{3/2}}$ (p -série convergente)
 35. Converge absolutamente pelo teste da raiz. 37. Diverge; $a_n \rightarrow \infty$
 39. Converge condicionalmente; $\sqrt{n+1} - \sqrt{n} = 1/(\sqrt{n} + \sqrt{n+1}) \rightarrow 0$, mas as séries de valores absolutos divergem (compare com $\sum(1/\sqrt{n})$)
 41. Diverge; $a_n \rightarrow 1/2 \neq 0$
 43. Converge absolutamente; sech $n = \frac{2}{e^n + e^{-n}} = \frac{2e^n}{e^{2n} + 1} < \frac{2e^n}{e^{2n}} = \frac{2}{e^n}$, um termo de uma série convergente.
 45. |Erro| < 0,2 47. |Erro| < 2×10^{-11} 49. 0,54030
 51. (a) $a_n \geq a_{n+1}$ (b) $-1/2$

Seção 11.7

1. (a) 1, $-1 < x < 1$ (b) $-1 < x < 1$ (c) nenhum
 3. (a) $1/4$, $-1/2 < x < 0$ (b) $-1/2 < x < 0$ (c) nenhum
 5. (a) 10, $-8 < x < 12$ (b) $-8 < x < 12$ (c) nenhum
 7. (a) 1, $-1 < x < 1$ (b) $-1 < x < 1$ (c) nenhum
 9. (a) 3, $-3 \leq x \leq 3$ (b) $-3 \leq x \leq 3$ (c) nenhum
 11. (a) ∞ , para qualquer valor de x (b) para qualquer valor de x (c) nenhum
 13. (a) ∞ , para qualquer valor de x (b) para qualquer valor de x (c) nenhum
 15. (a) 1, $-1 \leq x < 1$ (b) $-1 < x < 1$ (c) $x = -1$
 17. (a) 5, $-8 < x < 2$ (b) $-8 < x < 2$ (c) nenhum
 19. (a) 3, $-3 < x < 3$ (b) $-3 < x < 3$ (c) nenhum
 21. (a) 1, $-1 < x < 1$ (b) $-1 < x < 1$ (c) nenhum
 23. (a) 0, $x = 0$ (b) $x = 0$ (c) nenhum
 25. (a) 2, $-4 < x \leq 0$ (b) $-4 < x < 0$ (c) $x = 0$
 27. (a) 1, $-1 \leq x \leq 1$ (b) $-1 \leq x \leq 1$ (c) nenhum
 29. (a) $1/4$, $1 \leq x \leq 3/2$ (b) $1 \leq x \leq 3/2$ (c) nenhum
 31. (a) 1, $(-1 - \pi) \leq x < (1 - \pi)$ (b) $(-1 - \pi) < x < (1 - \pi)$ (c) $x = -1 - \pi$
 33. $-1 < x < 3$, $4/(3 + 2x - x^2)$
 35. $0 < x < 16$, $2/(4 - \sqrt{x})$
 37. $-\sqrt{2} < x < \sqrt{2}$, $3/(2 - x^2)$
 39. $1 < x < 5$, $2/(x - 1)$, $1 < x < 5$, $-2/(x - 1)^2$

41. (a) $\cos x = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \frac{x^8}{8!} - \frac{x^{10}}{10!} + \dots$; converge para qualquer valor de x
 (b) e
 (c) $2x - \frac{2^3x^3}{3!} + \frac{2^5x^5}{5!} - \frac{2^7x^7}{7!} + \frac{2^9x^9}{9!} - \frac{2^{11}x^{11}}{11!} + \dots$
 43. (a) $\frac{x^2}{2} + \frac{x^4}{12} + \frac{x^6}{45} + \frac{17x^8}{2.520} + \frac{31x^{10}}{14.175}$, $-\frac{\pi}{2} < x < \frac{\pi}{2}$
 (b) $1 + x^2 + \frac{2x^4}{3} + \frac{17x^6}{45} + \frac{62x^8}{315} + \dots$, $-\frac{\pi}{2} < x < \frac{\pi}{2}$

Seção 11.8

1. $P_0(x) = 0$, $P_1(x) = x - 1$, $P_2(x) = (x - 1) - \frac{1}{2}(x - 1)^2$
 $P_3(x) = (x - 1) - \frac{1}{2}(x - 1)^2 + \frac{1}{3}(x - 1)^3$
 3. $P_0(x) = \frac{1}{2}$, $P_1(x) = \frac{1}{2} - \frac{1}{4}(x - 2)$
 $P_2(x) = \frac{1}{2} - \frac{1}{4}(x - 2) + \frac{1}{8}(x - 2)^2$
 $P_3(x) = \frac{1}{2} - \frac{1}{4}(x - 2) + \frac{1}{8}(x - 2)^2 - \frac{1}{16}(x - 2)^3$
 5. $P_0(x) = \frac{\sqrt{2}}{2}$, $P_1(x) = \frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2}\left(x - \frac{\pi}{4}\right)$
 $P_2(x) = \frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2}\left(x - \frac{\pi}{4}\right) - \frac{\sqrt{2}}{4}\left(x - \frac{\pi}{4}\right)^2$
 $P_3(x) = \frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2}\left(x - \frac{\pi}{4}\right) - \frac{\sqrt{2}}{4}\left(x - \frac{\pi}{4}\right)^2 - \frac{\sqrt{2}}{12}\left(x - \frac{\pi}{4}\right)^3$
 7. $P_0(x) = 2$, $P_1(x) = 2 + \frac{1}{4}(x - 4)$
 $P_2(x) = 2 + \frac{1}{4}(x - 4) - \frac{1}{64}(x - 4)^2$
 $P_3(x) = 2 + \frac{1}{4}(x - 4) - \frac{1}{64}(x - 4)^2 + \frac{1}{512}(x - 4)^3$
 9. $\sum_{n=0}^{\infty} \frac{(-x)^n}{n!} = 1 - x + \frac{x^2}{2!} - \frac{x^3}{3!} + \frac{x^4}{4!} - \dots$
 11. $\sum_{n=0}^{\infty} (-1)^n x^n = 1 - x + x^2 - x^3 + \dots$
 13. $\sum_{n=0}^{\infty} \frac{(-1)^n 3^{2n+1} x^{2n+1}}{(2n+1)!}$ 15. $7 \sum_{n=0}^{\infty} \frac{(-1)^n x^{2n}}{(2n)!}$ 17. $\sum_{n=0}^{\infty} \frac{x^{2n}}{(2n)!}$
 19. $x^4 - 2x^3 - 5x + 4$
 21. $8 + 10(x - 2) + 6(x - 2)^2 + (x - 2)^3$
 23. $21 - 36(x + 2) + 25(x + 2)^2 - 8(x + 2)^3 + (x + 2)^4$
 25. $\sum_{n=0}^{\infty} (-1)^n (n + 1)(x - 1)^n$ 27. $\sum_{n=0}^{\infty} \frac{e^{-2}}{n!} (x - 2)^n$
 33. $L(x) = 0$, $Q(x) = -x^2/2$ 35. $L(x) = 1$, $Q(x) = 1 + x^2/2$
 37. $L(x) = x$, $Q(x) = x$