27.

n	T_n	M_n	Sn
6	6,695473	6,252572	6,403292
12	6,474023	6,363008	6,400206

n	E_T	E_M	E_S
6	−0,295473	0,147428	−0,003292
12	−0,074023	0,036992	−0,000206

As observações são as mesmas que as de depois do Exemplo 1.

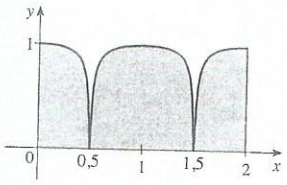
29. (a) 19,8 (b) 20,6 (c) $20,5\overline{3}$

31. (a) 23,44 (b) $0,341\overline{3}$ **33.** 18,8 m/s

35. $1,0337 \times 10^5$ megawatt-horas

37. 828 **39.** 6,0 **41.** 59,4

43.



EXERCÍCIOS 7.8 ■ PÁGINA 487

Abreviações: C, convergente; D, divergente

1. (a) Intervalo infinito (b) Descontinuidade infinita
(c) Descontinuidade infinita (d) Intervalo infinito

3. $\frac{1}{2} - 1/(2t^2)$; 0,495, 0,49995, 0,4999995; 0,5

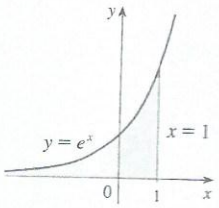
5. $\frac{1}{12}$ **7.** D **9.** $2e^{-2}$ **11.** D **13.** 0 **15.** D

17. D **19.** $e^2/4$ **21.** D **23.** $\pi/9$

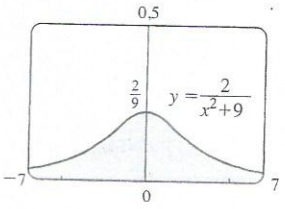
25. $\frac{1}{2}$ **27.** D **29.** $\frac{32}{3}$ **31.** D **33.** $\frac{75}{4}$

35. D **37.** $-2/e$ **39.** $\frac{8}{3}\ln 2 - \frac{8}{9}$

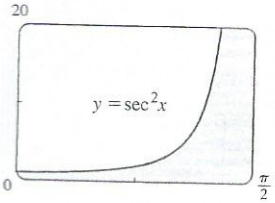
41. e



43. $2\pi/3$



45. Área infinita

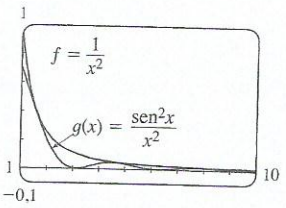


47. (a)

t	$\int_1^t [(\text{sen}^2 x)/x^2]\,dx$
2	0,447453
5	0,577101
10	0,621306
100	0,668479
1 000	0,672957
10 000	0,673407

Parece que a integral é convergente.

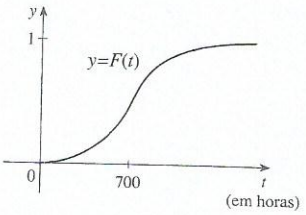
(c)



49. C **51.** D **53.** D **55.** π **57.** $p < 1$, $1/(1-p)$

59. $p > -1$, $-1/(p+1)^2$ **65.** $\sqrt{2GM/R}$

67. (a)



(b) A taxa na qual a fração $F(t)$ aumenta à medida que t aumenta

(c) 1; todas as lâmpada queimam eventualmente

69. 1 000

71. (a) $F(s) = 1/s, s > 0$ (b) $F(s) = 1/(s-1), s > 1$
(c) $F(s) = 1/s^2, s > 0$

77. $C = 1$; $\ln 2$ **79.** Não

CAPÍTULO 7 REVISÃO ■ PÁGINA 490

Teste Verdadeiro-Falso

1. Falso **3.** Falso **5.** Falso **7.** Falso
9. (a) Verdadeiro (b) Falso **11.** Falso **13.** Falso

Exercícios

1. $5 + 10 \ln \frac{2}{3}$ **3.** $\ln 2$ **5.** $\frac{2}{15}$

7. $-\cos(\ln t) + C$ **9.** $\frac{64}{5}\ln 4 - \frac{124}{25}$

11. $\sqrt{3} - \frac{1}{3}\pi$ **13.** $3e^{\sqrt[3]{x}}(\sqrt[3]{x^2} - 2\sqrt[3]{x} + 2) + C$

15. $-\frac{1}{2}\ln|x| + \frac{3}{2}\ln|x+2| + C$

17. $x \sec x - \ln|\sec x + \text{tg}\, x| + C$

19. $\frac{1}{18}\ln(9x^2 + 6x + 5) + \frac{1}{9}\text{tg}^{-1}[\frac{1}{2}(3x+1)] + C$

21. $\ln|x - 2 + \sqrt{x^2 - 4x}| + C$

23. $\ln\left|\frac{\sqrt{x^2+1}-1}{x}\right| + C$

25. $\frac{3}{2}\ln(x^2+1) - 3\,\text{tg}^{-1}x + \sqrt{2}\,\text{tg}^{-1}(x/\sqrt{2}) + C$

27. $\frac{2}{5}$ **29.** 0 **31.** $6 - \frac{3}{2}\pi$

33. $\frac{x}{\sqrt{4-x^2}} - \text{sen}^{-1}\left(\frac{x}{2}\right) + C$

35. $4\sqrt{1+\sqrt{x}} + C$ **37.** $\frac{1}{2}\text{sen}\, 2x - \frac{1}{8}\cos 4x + C$

39. $\frac{1}{8}e - \frac{1}{4}$ **41.** $\frac{1}{36}$ **43.** D

45. $4\ln 4 - 8$ **47.** $-\frac{4}{3}$ **49.** $\pi/4$

51. $(x+1)\ln(x^2+2x+2) + 2\,\text{arctg}(x+1) - 2x + C$