EXERCISES 7.5 ■ PAGE 488

1. $\sin x + \frac{1}{3}\sin^3 x + C$

3. $\sin x + \ln\left|\csc x - \cot x\right| + C$

5. $4 - \ln 9$ **7.** $e^{\pi/4} - e^{-\pi/4}$

9. $\frac{243}{5}\ln 3 - \frac{242}{25}$ **11.** $\frac{1}{2}\ln(x^2 - 4x + 5) + \tan^{-1}(x - 2) + C$

13. $\frac{1}{8}\cos^8\theta - \frac{1}{6}\cos^6\theta + C$ $\left(\text{or } \frac{1}{4}\sin^4\theta - \frac{1}{3}\sin^6\theta + \frac{1}{8}\sin^8\theta + C\right)$

15. $x/\sqrt{1 - x^2} + C$

17. $\frac{1}{4}x^2 - \frac{1}{2}x\sin x\cos x + \frac{1}{4}\sin^2 x + C$
$\left(\text{or } \frac{1}{4}x^2 - \frac{1}{4}x\sin 2x - \frac{1}{8}\cos 2x + C\right)$

19. $e^{e^x} + C$ **21.** $(x + 1)\arctan\sqrt{x} - \sqrt{x} + C$

23. $\frac{4097}{45}$ **25.** $3x + \frac{23}{3}\ln\left|x - 4\right| - \frac{5}{3}\ln\left|x + 2\right| + C$

27. $x - \ln(1 + e^x) + C$ **29.** $15 + 7\ln\frac{2}{7}$

31. $\sin^{-1}x - \sqrt{1 - x^2} + C$

33. $2\sin^{-1}\left(\dfrac{x + 1}{2}\right) + \dfrac{x + 1}{2}\sqrt{3 - 2x - x^2} + C$

35. 0 **37.** $\pi/8 - \frac{1}{4}$ **39.** $\ln\left|\sec\theta - 1\right| - \ln\left|\sec\theta\right| + C$

41. $\theta\tan\theta - \frac{1}{2}\theta^2 - \ln\left|\sec\theta\right| + C$ **43.** $\frac{2}{3}(1 + e^x)^{3/2} + C$

45. $-\frac{1}{3}(x^3 + 1)e^{-x^3} + C$

47. $\ln\left|x - 1\right| - 3(x - 1)^{-1} - \frac{3}{2}(x - 1)^{-2} - \frac{1}{3}(x - 1)^{-3} + C$

49. $\ln\left|\dfrac{\sqrt{4x + 1} - 1}{\sqrt{4x + 1} + 1}\right| + C$ **51.** $-\ln\left|\dfrac{\sqrt{4x^2 + 1} + 1}{2x}\right| + C$

53. $\dfrac{1}{m}x^2\cosh(mx) - \dfrac{2}{m^2}x\sinh(mx) + \dfrac{2}{m^3}\cosh(mx) + C$

55. $2 \ln \sqrt{x} - 2 \ln\left(1 + \sqrt{x}\right) + C$

57. $\frac{3}{7}(x + c)^{7/3} - \frac{3}{4}c(x + c)^{4/3} + C$

59. $\sin(\sin x) - \frac{1}{3}\sin^3(\sin x) + C$ **61.** $2\left(x - 2\sqrt{x} + 2\right)e^{\sqrt{x}} + C$

63. $-\tan^{-1}(\cos^2 x) + C$ **65.** $\frac{2}{3}[(x + 1)^{3/2} - x^{3/2}] + C$

67. $\sqrt{2} - 2/\sqrt{3} + \ln\left(2 + \sqrt{3}\right) - \ln\left(1 + \sqrt{2}\right)$

69. $e^x - \ln(1 + e^x) + C$

71. $-\sqrt{1 - x^2} + \frac{1}{2}(\arcsin x)^2 + C$

73. $\frac{1}{8}\ln|x - 2| - \frac{1}{16}\ln(x^2 + 4) - \frac{1}{8}\tan^{-1}(x/2) + C$

75. $2(x - 2)\sqrt{1 + e^x} + 2 \ln \dfrac{\sqrt{1 + e^x} + 1}{\sqrt{1 + e^x} - 1} + C$

77. $\frac{2}{3}\tan^{-1}(x^{3/2}) + C$

79. $\frac{1}{3}x\sin^3 x + \frac{1}{3}\cos x - \frac{1}{9}\cos^3 x + C$ **81.** $xe^{x^2} + C$