

Some problems have more than one correct answer, and every problem has more than one correct form for its answer.

1.  $-\frac{9}{2} \ln \left| \cos\left(\frac{1}{9}x\right)^2 \right| + C$

2.  $x - \frac{1}{2} \ln |10x + 5| + C$

3. 3

4.  $1 - \frac{1}{3}(\ln 4)$

5.  $\frac{1}{3}(4 - \sqrt{8})$

6.  $\frac{1}{2}x[\cos(\ln x) + \sin(\ln x)] + C$

7.  $x - \frac{1}{2}\cos 2x + C$

8.  $-\frac{5}{3}e^{1/y} + C$

9.  $\frac{5 \ln x}{\ln 5} + C$

10.  $\frac{1}{4} \arctan \left[ \frac{1}{4}(x+1) \right] + C$

11.  $\frac{2\sqrt{w}}{\ln 2} + C$

12.  $\frac{1}{6}(\sin^6 x) + C$

13.  $\ln \left| \sin(e^t - 3) \right| + C$

14.  $\sin(\ln x - 2) + C$

15.  $-\frac{3}{2} \operatorname{sech} x^2 + C$

16.  $\frac{1}{6} \ln \left| \frac{747}{76} \right|$

17.  $18 \sinh\left(\frac{1}{2}x - \ln 3\right) + C$

18.  $\frac{1}{6} \ln |5 + 6 \ln x| + C$

19.  $-2 \cos x + C$

20.  $2x - \tan x + C$

21.  $\frac{1}{2} \ln |1 + 2 \sin x| + C$

22.  $2 \cosh(4x - \ln 2) + C$

23.  $x \arccos x - \sqrt{1-x^2} + C$

24.  $-2 + \ln 675$

25.  $\frac{1}{4}x^4 \ln 3x - \frac{1}{16}x^4 + C$

26.  $7xe^x - 7e^x + C$

27.  $6 \sin x - 6x \cos x + C$

28.  $2/27$

29.  $2 \sin 3x - \frac{2}{3} \sin^3 3x + C$

30.  $\frac{\pi}{4} - \frac{2}{3}$

31.  $-\frac{1}{22} \cos 11x - \frac{1}{10} \cos 5x + C$

32.  $\frac{1}{4} \sin 2x + \frac{1}{12} \sin 6x + C$

33.  $6/13$

34.  $7 \tan x + \frac{7}{3} \tan^3 x + C$

35.  $2/5$

36.  $2 \ln \left| \sqrt{x} - 6 \right| + C$

37.  $\frac{1}{5} \ln |t^5 + 20t + 7| + C$

38.  $13/12$

39.  $-4/5$

40.  $4/3$

41.  $-15/8$

42.  $x = 5 - 2t; y = 2 + 9t; 0 \leq t \leq 1$

43.  $x = t^2 - 1; y = t; t \geq 0$

44.  $x = -5 - 3t; y = -9 + 3t; t \geq 0$

45.  $y = \frac{1}{8}x + 4$

46.  $y = -\sqrt{3}x + \frac{1}{6}\pi\sqrt{3} + 3$

47.  $33/2$

48. 90

49.  $33/16$

50.  $5\sqrt{2}(e-1)$

51.  $\ln \sqrt{3}$

52.  $\int_0^2 \sqrt{1 + \frac{1}{49}y^{-12/7}} dy$

53.  $\int_{-\pi}^0 \sqrt{1 + 36 \cos^2 6y} dy$

54.  $\int_{\pi/6}^{\pi/3} \csc x dx$

55.  $\int_0^1 \sqrt{1 + 9x^4} dx$

56.  $228\pi$

57.  $60\pi$

58.  $\frac{98}{81}\pi$

59.  $\frac{1}{2}(125 - 10\sqrt{10})\pi$

60.  $2\pi \int_0^{\pi/3} \left( \int_0^y \sin t \, dt \right) \cos y \, dy$

61.  $6\pi \int_1^2 \left( \frac{\sqrt{y^4 + 9}}{y^3} \right) dy$

62.  $2\pi \int_1^{\pi/4} \cot x \sqrt{1 + \csc^2 x} \, dx$

63.  $6x^5 \sinh x^6$

64.  $-15x^2 \tanh(x^{-2}) + 10 \operatorname{sech}^2(x^{-2})$

65.  $-7 \tanh(7x + 10)$

66.  $-8x^7 \cos x^4$

67.  $\sqrt{4x + 9}$

68.  $6x^4$

69.  $x^5 - 1$

70. 0

71.  $5/108$

72.  $1/6$

73.  $\sqrt{\frac{115000}{3}}$  ft/sec

74. 36.25 kg

75.  $12x + 9$

76. 960 N/m

77. 11.8 km

78.  $y = \frac{1}{3}e^{x/2} - \frac{1}{3}$

79.  $4\pi$

80. 12,000 ft lb

81.  $\frac{14}{75}k$

82.  $3e^6 + e^2$

83. 6502 volts

84.  $\frac{1}{48}\pi^2 + \frac{1}{16}\pi$

85.  $\frac{2400}{7}$  mph

86.  $\int \sec^n x \, dx = \frac{1}{n-1} (\sec^{n-2} x) \tan x + \frac{n-2}{n-1} \int \sec^{n-2} x \, dx$

87.  $\int \sin^n x \, dx = -\frac{1}{n} (\sin^{n-1} x) \cos x + \frac{n-1}{n} \int \sin^{n-2} x \, dx$

88.  $\int x^n e^x \, dx = x^n e^x - n \int (x^{n-1}) e^x \, dx$