

1. $3 \ln \left| x + \sqrt{3+x^2} \right| + C$

2. $-\frac{\sqrt{3-t^2}}{3t} + C$

3. $\frac{-1}{45t^5} (9-t^2)^{5/2} + C$

4. $-\frac{5}{8x} \sqrt{x^2+64} + C$

5. $\frac{1}{4} \ln \left| x + \sqrt{x^2+36} \right| - \frac{1}{4x} \sqrt{x^2+36} + C$

6. $\sqrt{x^2-49} - 7 \operatorname{arcsec} \left(\frac{x}{7} \right) + C$

7. $\frac{\operatorname{arcsec} 2x}{4} + C$

8. $\ln \left| \frac{(x+4)^5}{(x+5)^3} \right| + C$

9. $\ln \left| \frac{(t-2)^8 (t+4)^4}{t^{12}} \right| + C$

10. $\ln \left(x^4 \sqrt{x^2+4} \right) + \frac{1}{2} \operatorname{arctan} \left(\frac{1}{2}x \right) + C$

11. $\frac{1}{2}x^2 - 16x + 64(x+4)^{-1} + 48 \ln|x+4| + C$

12. $\frac{1}{9x} + \frac{1}{54} \ln \left| \frac{x-3}{x+3} \right| + C$

13. $\left(\frac{-1}{x-2} \right) \left(4 + \frac{3}{2x-4} \right) + C$

14. $\ln|x^2+2x+5| - \frac{1}{2} \operatorname{arctan} \left(\frac{x+1}{2} \right) - \frac{1}{x^2+2x+5} + C$

15. $\frac{1}{x-2} - \left(\frac{1}{x-2} \right)^2 + \frac{1}{2} \operatorname{arctan} \left(\frac{x}{2} \right) + C$

16. $3 \ln|x| + \ln|x^2+4| + C$

17. $\frac{3}{4} \operatorname{arctan}(4x) - \frac{1}{16x^2+1} + C$

18. $\frac{1}{2}x^2 - 8x + 64(x+4)^{-1} + 48 \ln|x+4| + C$

19. $\frac{3}{2}x^2 + \ln \left| \frac{x}{\sqrt{x^2+5}} \right| + C$

20. $\frac{3}{2}x^2 + 2 \ln \left| \frac{x}{x+1} \right| + C$

21. $(\ln 11)/10$

22. $\pi/2$

23. 14

24. $-(4/25)$

25. $-\pi/2$

26. 1

27. 0

28. $-25/2$

29. divergent

30. $1, \frac{3}{5}, \frac{1}{2}, \frac{5}{11}, \frac{3}{7}$

31. 0, 0, 0, 0, 0

32. 1, 4, 16, 64, 256

33. 1, 3, 2, -1, -3

34. $a_n = \frac{(-1)^{n+1}}{n^2}$

35. $a_n = 1 + (-1)^n$

36. 8/5

37. 0

38. 8

39. increasing, bounded

40. increasing, unbounded

41. decreasing, bounded

42. decreasing, unbounded

43. $\frac{24}{7} \left[1 - \left(\frac{1}{8} \right)^n \right], \frac{24}{7}$

44. $-\frac{5}{3} \left[1 - \left(4^n \right) \right], \text{diverges}$

45. 9/4

46. 6

47. $-3/4$

48. diverges

49. $\frac{1}{4} (5 + \sqrt{5})$

50. $\frac{e^3}{e^3-1}$

51. diverges

52. 4

53. $|\chi| < 0.5$

54. $7 < \chi < 9$

55. $4 < \chi < 14$

56. $4 < \chi < 6$

57. converges

58. diverges

59. converges

60. diverges

61. diverges

62. converges

63. diverges

64. converges

65. converges

66. converges

67. diverges

68. diverges

69. converges

70. converges