

Finding an Indefinite Integral In Exercises 15–46, find the indefinite integral.

15. $\int 14(x-5)^6 dx$

16. $\int \frac{5}{(t+6)^3} dt$

17. $\int \frac{7}{(z-10)^7} dz$

18. $\int t^3 \sqrt{t^4+1} dt$

19. $\int \left[z^2 + \frac{1}{(1-z)^6} \right] dz$

20. $\int \left[4x - \frac{2}{(2x+3)^2} \right] dx$

21. $\int \frac{t^2-3}{-t^3+9t+1} dt$

22. $\int \frac{x+1}{\sqrt{3x^2+6x}} dx$

23. $\int \frac{x^2}{x-1} dx$

24. $\int \frac{3x}{x+4} dx$

25. $\int \frac{x+2}{x+1} dx$

26. $\int \left(\frac{1}{9z-5} - \frac{1}{9z+5} \right) dz$

27. $\int (5+4x^2)^2 dx$

28. $\int x \left(3 + \frac{2}{x} \right)^2 dx$

29. $\int x \cos 2\pi x^2 dx$

30. $\int \csc \pi x \cot \pi x dx$

31. $\int \frac{\sin x}{\sqrt{\cos x}} dx$

32. $\int \frac{\csc^2 3t}{\cot 3t} dt$

33. $\int \frac{2}{e^{-x}+1} dx$

34. $\int \frac{4}{3-e^x} dx$

35. $\int \frac{\ln x^2}{x} dx$

36. $\int (\tan x) [\ln(\cos x)] dx$

37. $\int \frac{1+\cos \alpha}{\sin \alpha} d\alpha$

38. $\int \frac{1}{\cos \theta - 1} d\theta$

39. $\int \frac{-1}{\sqrt{1-(4t+1)^2}} dt$

40. $\int \frac{1}{25+4x^2} dx$

41. $\int \frac{\tan(2/t)}{t^2} dt$

42. $\int \frac{e^{-1/t^3}}{t^4} dt$

43. $\int \frac{6}{z\sqrt{9z^2-25}} dz$

44. $\int \frac{1}{(x-1)\sqrt{4x^2-8x+3}} dx$

45. $\int \frac{4}{4x^2+4x+65} dx$

46. $\int \frac{1}{x^2-4x+9} dx$

9. $\int (1+6x)^4(6) dx$

10. $\int (x^2-9)^3(2x) dx$

11. $\int \sqrt{25-x^2} (-2x) dx$

12. $\int \sqrt[3]{3-4x^2} (-8x) dx$

13. $\int x^3(x^4+3)^2 dx$

14. $\int x^2(6-x^3)^5 dx$

15. $\int x^2(2x^3-1)^4 dx$

16. $\int x(5x^2+4)^3 dx$

17. $\int t\sqrt{t^2+2} dt$

18. $\int t^3\sqrt{2t^4+3} dt$

19. $\int 5x\sqrt[3]{1-x^2} dx$

20. $\int 6u^6\sqrt{u^7+8} du$

21. $\int \frac{7x}{(1-x^2)^3} dx$

22. $\int \frac{x^3}{(1+x^4)^2} dx$

23. $\int \frac{x^2}{(1+x^3)^2} dx$

24. $\int \frac{6x^2}{(4x^3-9)^3} dx$

25. $\int \frac{x}{\sqrt{1-x^2}} dx$

26. $\int \frac{x^3}{\sqrt{1+x^4}} dx$

Evaluating a Definite Integral In Exercises 61–70, evaluate the definite integral. Use a graphing utility to verify your result.

61. $\int_{-1}^1 x(x^2+1)^3 dx$

62. $\int_0^1 x^3(2x^4+1)^2 dx$

63. $\int_1^2 2x^2\sqrt{x^3+1} dx$

64. $\int_{-1}^0 x\sqrt{1-x^2} dx$

65. $\int_0^4 \frac{1}{\sqrt{2x+1}} dx$

66. $\int_0^2 \frac{x}{\sqrt{1+2x^2}} dx$

67. $\int_1^9 \frac{1}{\sqrt{x}(1+\sqrt{x})^2} dx$

68. $\int_4^5 \frac{x}{\sqrt{2x-6}} dx$

69. $2\pi \int_0^1 (x+1)\sqrt{1-x} dx$

70. $2\pi \int_{-1}^0 x^2\sqrt{x+1} dx$