Tabla de Integrales

Puede sumarse una constante arbitraria C a cada integral.

Potencias, Exponenciales y Logarítmicas

1. $\displaystyle\int x^n\,dx = \frac{x^{n+1}}{n+1} + C \qquad (n \neq -1)$

2. $\displaystyle\int \frac{1}{x}\,dx = \log|x| + C$

3. $\displaystyle\int e^x\,dx = e^x + C$

4. $\displaystyle\int a^x\,dx = \frac{a^x}{\log a} + C$

5. $\displaystyle\int x^n e^{ax}\,dx = \frac{x^n e^{ax}}{a} - \frac{n}{a}\int x^{n-1}e^{ax}\,dx$

6. $\displaystyle\int x^n \log(ax)\,dx = x^{n+1}\left[\frac{\log ax}{n+1} - \frac{1}{(n+1)^2}\right] + C$

7. $\displaystyle\int x^n (\log ax)^m\,dx = \frac{x^{n+1}}{n+1}(\log ax)^m - \frac{m}{n+1}\int x^n (\log ax)^{m-1}\,dx$

Trigonométricas Básicas

8. $\displaystyle\int \operatorname{sen} x\,dx = -\cos x + C$

9. $\displaystyle\int \cos x\,dx = \operatorname{sen} x + C$

10. $\displaystyle\int \tan x\,dx = -\log|\cos x| + C$

11. $\displaystyle\int \cot x\,dx = \log|\operatorname{sen} x| + C$

12. $\displaystyle\int \sec x\,dx = \log|\sec x + \tan x| + C$

13. $\displaystyle\int \csc x\,dx = \log|\csc x - \cot x| + C$

14. $\displaystyle\int \sec^2 x\,dx = \tan x + C$

15. $\displaystyle\int \csc^2 x\,dx = -\cot x + C$

16. $\displaystyle\int \sec x \tan x\,dx = \sec x + C$

17. $\displaystyle\int \csc x \cot x\,dx = -\csc x + C$

Potencias Trigonométricas (fórmulas de reducción)

18. $\displaystyle\int \operatorname{sen}^2 mx\,dx = \frac{1}{2m}(mx - \operatorname{sen} mx\cos mx) + C$

19. $\displaystyle\int \cos^2 mx\,dx = \frac{1}{2m}(mx + \operatorname{sen} mx\cos mx) + C$

20. $\displaystyle\int \operatorname{sen}^n x\,dx = -\frac{\operatorname{sen}^{n-1} x\cos x}{n} + \frac{n-1}{n}\int \operatorname{sen}^{n-2} x\,dx$

21. $\displaystyle\int \cos^n x\,dx = \frac{\cos^{n-1} x\,\operatorname{sen} x}{n} + \frac{n-1}{n}\int \cos^{n-2} x\,dx$

22. $\displaystyle\int \tan^n x\,dx = \frac{\tan^{n-1} x}{n-1} - \int \tan^{n-2} x\,dx \qquad (n \neq 1)$

23. $\displaystyle\int \cot^n x\,dx = \frac{\cot^{n-1} x}{n-1} - \int \cot^{n-2} x\,dx \qquad (n \neq 1)$

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

25. $\displaystyle\int \csc^n x\,dx = \frac{\cot x \csc^{n-1} x}{n-2} + \frac{n-2}{n-1}\int \csc^{n-2} x\,dx \qquad (n \neq 1)$

Productos Trigonométricos

26. $\displaystyle\int \operatorname{sen} ax\,\operatorname{sen} bx\,dx = \frac{\operatorname{sen}(a-b)x}{2(a-b)} - \frac{\operatorname{sen}(a+b)x}{2(a+b)} + C \qquad (a^2 \neq b^2)$

27. $\displaystyle\int \operatorname{sen} ax\,\cos bx\,dx = \frac{\cos(a-b)x}{2(a-b)} - \frac{\cos(a+b)x}{2(a+b)} + C \qquad (a^2 \neq b^2)$

28. $\displaystyle\int \cos ax\,\cos bx\,dx = \frac{\operatorname{sen}(a-b)x}{2(a-b)} - \frac{\operatorname{sen}(a+b)x}{2(a+b)} + C \qquad (a^2 \neq b^2)$

29. $\displaystyle\int \cos^m x\,\operatorname{sen}^n x\,dx = \frac{\cos^{m-1} x\,\operatorname{sen}^{n+1} x}{m+n} + \frac{m-1}{m+n}\int \cos^{m-2} x\,\operatorname{sen}^n x\,dx$

30. $\displaystyle\int \cos^m x\,\operatorname{sen}^n x\,dx = -\frac{\operatorname{sen}^{n-1} x\,\cos^{m+1} x}{m+n} + \frac{n-1}{m+n}\int \cos^m x\,\operatorname{sen}^{n-2} x\,dx$

31. $\displaystyle\int x^n \operatorname{sen} ax\,dx = -\frac{x^n \cos ax}{a} + \frac{n}{a}\int x^{n-1}\cos ax\,dx$

32. $\displaystyle\int x^n \cos ax\,dx = \frac{x^n \operatorname{sen} ax}{a} - \frac{n}{a}\int x^{n-1}\operatorname{sen} ax\,dx$

Exponencial × Trigonométrica

33. $\displaystyle\int e^{ax} \operatorname{sen} bx\,dx = \frac{e^{ax}(a\operatorname{sen} bx - b\cos bx)}{a^2+b^2} + C$

34. $\displaystyle\int e^{ax} \cos bx\,dx = \frac{e^{ax}(b\operatorname{sen} bx + a\cos bx)}{a^2+b^2} + C$

Hiperbólicas

35. $\int \operatorname{senh} x\,dx = \cosh x + C$

36. $\int \cosh x\,dx = \operatorname{senh} x + C$

37. $\int \tanh x\,dx = \log|\cosh x| + C$

38. $\int \coth x\,dx = \log|\operatorname{senh} x| + C$

39. $\int \operatorname{sech} x\,dx = \arctan(\operatorname{senh} x) + C$

40. $\int \operatorname{csch} x\,dx = \log\left|\tanh \frac{x}{2}\right| + C$

41. $\int \operatorname{senh}^2 x\,dx = \frac{1}{4}\operatorname{senh} 2x - \frac{1}{2}x + C$

42. $\int \cosh^2 x\,dx = \frac{1}{4}\operatorname{senh} 2x + \frac{1}{2}x + C$

43. $\int \operatorname{sech}^2 x\,dx = \tanh x + C$

44. $\int \operatorname{sech} x \tanh x\,dx = -\operatorname{sech} x + C$

45. $\int \operatorname{csch} x \coth x\,dx = -\operatorname{csch} x + C$

Inversas Trigonométricas

46. $\int \operatorname{arc\,sen} \frac{x}{a}\,dx = x \operatorname{arc\,sen} \frac{x}{a} + \sqrt{a^2 - x^2} + C \qquad (a > 0)$

47. $\int \operatorname{arc\,cos} \frac{x}{a}\,dx = x \operatorname{arc\,cos} \frac{x}{a} - \sqrt{a^2 - x^2} + C \qquad (a > 0)$

48. $\int \arctan \frac{x}{a}\,dx = x \arctan \frac{x}{a} - \frac{a}{2}\log(a^2 + x^2) + C \qquad (a > 0)$

Hiperbólicas Inversas

49. $\int \operatorname{senh}^{-1} \frac{x}{a}\,dx = x\ \operatorname{senh}^{-1} \frac{x}{a} - \sqrt{x^2 - a^2} + C \qquad (a > 0)$

50. $\int \cosh^{-1} \frac{x}{a}\,dx = x\ \cosh^{-1} \frac{x}{a} \mp \sqrt{x^2 - a^2} + C$

51. $\int \tanh^{-1} \frac{x}{a}\,dx = x\ \tanh^{-1} \frac{x}{a} + \frac{a}{2}\log|a^2 - x^2| + C$

Racionales Básicas

52. $\displaystyle\int \frac{1}{a^2+x^2}\,dx = \frac{1}{a}\arctan\frac{x}{a} + C \qquad (a>0)$

53. $\displaystyle\int \frac{1}{a^2-x^2}\,dx = \frac{1}{2a}\log\left|\frac{a+x}{a-x}\right| + C$

54. $\displaystyle\int \frac{1}{x(a+bx)}\,dx = \frac{1}{a}\log\left|\frac{x}{a+bx}\right| + C$

55. $\displaystyle\int \frac{1}{ax^2+bx+c}\,dx = \begin{cases} \dfrac{1}{\sqrt{b^2-4ac}}\log\left|\dfrac{2ax+b-\sqrt{b^2-4ac}}{2ax+b+\sqrt{b^2-4ac}}\right| + C & \text{si } b^2>4ac \\ \dfrac{2}{\sqrt{4ac-b^2}}\arctan\dfrac{2ax+b}{\sqrt{4ac-b^2}} + C & \text{si } b^2<4ac \end{cases}$

56. $\displaystyle\int \frac{x}{ax^2+bx+c}\,dx = \frac{1}{2a}\log|ax^2+bx+c| - \frac{b}{2a}\int\frac{dx}{ax^2+bx+c}$

Irracionales con $\sqrt{a^2-x^2}$

57. $\displaystyle\int \frac{1}{\sqrt{a^2-x^2}}\,dx = \operatorname{arc\,sen}\frac{x}{a} + C \qquad (a>0)$

58. $\displaystyle\int \sqrt{a^2-x^2}\,dx = \frac{x}{2}\sqrt{a^2-x^2} + \frac{a^2}{2}\operatorname{arc\,sen}\frac{x}{a} + C$

59. $\displaystyle\int \frac{\sqrt{a^2-x^2}}{x}\,dx = \sqrt{a^2-x^2} - a\log\left|\frac{a+\sqrt{a^2-x^2}}{x}\right| + C$

60. $\displaystyle\int \frac{x}{\sqrt{a^2-x^2}}\,dx = -\sqrt{a^2-x^2} + C$

61. $\displaystyle\int \frac{x^2}{\sqrt{a^2-x^2}}\,dx = -\frac{x}{2}\sqrt{a^2-x^2} + \frac{a^2}{2}\operatorname{arc\,sen}\frac{x}{a} + C$

62. $\displaystyle\int \frac{1}{x\sqrt{a^2-x^2}}\,dx = -\frac{1}{a}\log\left|\frac{a+\sqrt{a^2-x^2}}{x}\right| + C$

63. $\displaystyle\int \frac{1}{(a^2-x^2)^{3/2}}\,dx = \frac{x}{a^2\sqrt{a^2-x^2}} + C$

64. $\displaystyle\int (a^2-x^2)^{3/2}\,dx = \frac{x}{8}(5a^2-2x^2)\sqrt{a^2-x^2} + \frac{3a^4}{8}\operatorname{arc\,sen}\frac{x}{a} + C$

65. $\displaystyle\int x\sqrt{a^2-x^2}\,dx = -\frac{1}{3}(a^2-x^2)^{3/2} + C$

66. $\displaystyle\int x^2\sqrt{a^2-x^2}\,dx = \frac{x}{8}(2x^2-a^2)\sqrt{a^2-x^2} + \frac{a^4}{8}\operatorname{arc\,sen}\frac{x}{a} + C$

Irracionales con $\sqrt{x^2\pm a^2}$

67. $\displaystyle\int \frac{1}{\sqrt{a^2+x^2}}\,dx = \log\left(x+\sqrt{a^2+x^2}\right) + C$

68. $\displaystyle\int \frac{1}{\sqrt{x^2-a^2}}\,dx = \log\left|x+\sqrt{x^2-a^2}\right| + C \qquad (a>0)$

69. $\displaystyle\int \sqrt{x^2\pm a^2}\,dx = \frac{x}{2}\sqrt{x^2\pm a^2} \pm \frac{a^2}{2}\log\left|x+\sqrt{x^2\pm a^2}\right| + C$

70. $\displaystyle\int \frac{\sqrt{x^2+a^2}}{x}\,dx = \sqrt{x^2+a^2} - a\log\left|\frac{a+\sqrt{x^2+a^2}}{x}\right| + C$

71. $\displaystyle\int \frac{\sqrt{x^2-a^2}}{x}\,dx = \sqrt{x^2-a^2} - a\arccos\frac{a}{|x|} + C \qquad (a>0)$

72. $\displaystyle\int x\sqrt{x^2\pm a^2}\,dx = \frac{1}{3}(x^2\pm a^2)^{3/2} + C$

73. $\displaystyle\int \frac{x}{\sqrt{x^2\pm a^2}}\,dx = \sqrt{x^2\pm a^2} + C$

74. $\displaystyle\int \frac{1}{x\sqrt{x^2+a^2}}\,dx = \frac{1}{a}\log\left|\frac{x}{a+\sqrt{x^2+a^2}}\right| + C$

75. $\displaystyle\int \frac{1}{x\sqrt{x^2-a^2}}\,dx = \frac{1}{a}\arccos\frac{a}{|x|} + C \qquad (a>0)$

76. $\displaystyle\int \frac{1}{x^2\sqrt{x^2\pm a^2}}\,dx = \mp\frac{\sqrt{x^2\pm a^2}}{a^2x} + C$

77. $\displaystyle\int x^3\sqrt{x^2+a^2}\,dx = \left(\frac{x^2}{5} - \frac{2a^2}{15}\right)(a^2+x^2)^{3/2} + C$

78. $\displaystyle\int \frac{\sqrt{x^2\pm a^2}}{x^4}\,dx = \mp\frac{(x^2\pm a^2)^{3/2}}{3a^2x^3} + C$

Irracionales con $\sqrt{a+bx}$

79. $\displaystyle\int x\sqrt{a+bx}\,dx = \frac{2(3bx-2a)(a+bx)^{3/2}}{15b^2} + C$

80. $\displaystyle\int \frac{\sqrt{a+bx}}{x}\,dx = 2\sqrt{a+bx} + a\int \frac{dx}{x\sqrt{a+bx}}$

81. $\displaystyle\int \frac{x}{\sqrt{a+bx}}\,dx = \frac{2(bx-2a)\sqrt{a+bx}}{3b^2} + C$

82. $\displaystyle\int \frac{1}{x\sqrt{a+bx}}\,dx = \begin{cases} \dfrac{1}{\sqrt{a}}\log\left|\dfrac{\sqrt{a+bx}-\sqrt{a}}{\sqrt{a+bx}+\sqrt{a}}\right| + C & a>0 \\ \dfrac{2}{\sqrt{-a}}\arctan\sqrt{\dfrac{a+bx}{-a}} + C & a<0 \end{cases}$

Irracionales con $\sqrt{ax^2+bx+c}$

83. $\displaystyle\int \frac{1}{\sqrt{ax^2+bx+c}}\,dx = \begin{cases} \dfrac{1}{\sqrt{a}}\log\left|2ax+b+2\sqrt{a}\sqrt{ax^2+bx+c}\right| + C & a>0 \\ \dfrac{1}{\sqrt{-a}}\operatorname{arc\,sen}\dfrac{-2ax-b}{\sqrt{b^2-4ac}} + C & a<0 \end{cases}$

84. $\displaystyle\int \sqrt{ax^2+bx+c}\,dx = \frac{2ax+b}{4a}\sqrt{ax^2+bx+c} + \frac{4ac-b^2}{8a}\int \frac{dx}{\sqrt{ax^2+bx+c}}$

85. $\displaystyle\int \frac{x}{\sqrt{ax^2+bx+c}}\,dx = \frac{\sqrt{ax^2+bx+c}}{a} - \frac{b}{2a}\int \frac{dx}{\sqrt{ax^2+bx+c}}$

86. $\displaystyle\int \frac{1}{x\sqrt{ax^2+bx+c}}\,dx = \begin{cases} -\dfrac{1}{\sqrt{c}}\log\left|\dfrac{2\sqrt{c}\sqrt{ax^2+bx+c}+bx+2c}{x}\right| + C & c>0 \\ \dfrac{1}{\sqrt{-c}}\operatorname{arc\,sen}\dfrac{bx+2c}{|x|\sqrt{b^2-4ac}} + C & c<0 \end{cases}$