# Tabla de integrales básicas

1. $\displaystyle\int dx = x + C$

2. $\displaystyle\int x^n \, dx = \frac{x^{n+1}}{n+1} + C \quad \text{si } n \neq -1$

3. $\displaystyle\int \frac{dx}{x} \, dx = \ln|x| + C$

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

5. $\displaystyle\int \ln(x) \, dx = x\ln(x) - x + C$

6. $\displaystyle\int a^x \, dx = \frac{a^x}{\ln(a)} + C$

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

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

9. $\displaystyle\int \sec^2(x) \, dx = \tan(x) + C$

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

11. $\displaystyle\int \sec(x)\tan(x) \, dx = \sec(x) + C$

12. $\displaystyle\int \csc(x)\cot(x) \, dx = -\csc(x) + C$

13. $\displaystyle\int \tan(x) \, dx = \ln|\sec(x)| + C$

14. $\displaystyle\int \cot(x) \, dx = \ln|\operatorname{sen}(x)| + C$

15. $\displaystyle\int \sec(x) \, dx = \ln|\sec(x) + \tan(x)| + C$

16. $\displaystyle\int \csc(x) \, dx = \ln|\csc(x) - \cot(x)| + C$

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

18. $\displaystyle\int \frac{dx}{a^2 + x^2} = \frac{1}{a}\arctan\frac{x}{a} + C$

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

20. $\displaystyle\int \frac{dx}{x\sqrt{x^2 - a^2}} = \frac{1}{a}\operatorname{arcsec}\left|\frac{x}{a}\right| + C$

21. $\displaystyle\int \operatorname{senh}(x) \, dx = \cosh(x) + C$

22. $\displaystyle\int \cosh(x) \, dx = \operatorname{senh}(x) + C$

23. $\displaystyle\int \tanh(x) \, dx = \ln|\cosh(x)| + C$

24. $\displaystyle\int \coth(x) \, dx = \ln|\operatorname{senh}(x)| + C$

25. $\displaystyle\int \operatorname{sech}^2(x) \, dx = \tanh(x) + C$

26. $\displaystyle\int \operatorname{csch}^2(x) \, dx = -\coth(x) + C$

27. $\displaystyle\int \operatorname{sech}(x)\tanh(x) \, dx = -\operatorname{sech}(x) + C$

28. $\displaystyle\int \operatorname{csch}(x)\coth(x) \, dx = -\operatorname{csch}(x) + C$

29. $\displaystyle\int \frac{dx}{\sqrt{x^2 + a^2}} = \operatorname{senh}^{-1}\left(\frac{x}{a}\right) + C$

30. $\displaystyle\int \frac{dx}{\sqrt{x^2 - a^2}} = \cosh^{-1}\left(\frac{x}{a}\right) + C, \quad x > a > 0$

31. $\displaystyle\int \frac{dx}{a^2 - x^2} = \frac{1}{a}\tanh^{-1}\left(\frac{x}{a}\right) + C, \quad x^2 < a^2$

32. $\displaystyle\int \frac{dx}{x^2 - a^2} = -\frac{1}{a}\coth^{-1}\left(\frac{x}{a}\right) + C, \quad x^2 > a^2$

# Formulario de derivadas

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|---|---|
| $\dfrac{d}{dx}[c] = 0$ | $\dfrac{d}{dx}[x] = 1$ |
| $\dfrac{d}{dx}[cu] = c\dfrac{du}{dx}$ | $\dfrac{d}{dx}[u^n] = nu^{n-1}\dfrac{du}{dx}$ |
| $\dfrac{d}{dx}[u \pm v] = \dfrac{du}{dx} \pm \dfrac{dv}{dx}$ | $\dfrac{d}{dx}[uv] = u\dfrac{dv}{dx} + v\dfrac{du}{dx}$ |
| $\dfrac{d}{dx}\left[\dfrac{u}{v}\right] = \dfrac{v\frac{du}{dx} - u\frac{dv}{dx}}{v^2}$ | $\dfrac{d}{dx}\left[\,\lvert u \rvert\,\right] = \dfrac{u}{\lvert u \rvert}\dfrac{du}{dx}, \qquad u \neq 0$ |
| $\dfrac{d}{dx}[\ln(u)] = \dfrac{1}{u}\dfrac{du}{dx}, \qquad u > 0$ | $\dfrac{d}{dx}[\ln\lvert u \rvert] = \dfrac{1}{u}\dfrac{du}{dx}$ |
| $\dfrac{d}{dx}[\log_a(u)] = \dfrac{1}{u\ln(a)}\dfrac{du}{dx}$ | $\dfrac{d}{dx}[e^u] = e^u\dfrac{du}{dx}$ |
| $\dfrac{d}{dx}[a^u] = a^u\ln(a)\dfrac{du}{dx}$ | $\dfrac{d}{dx}[u^v] = vu^{v-1}\dfrac{du}{dx} + u^v\ln(u)\dfrac{dv}{dx}$ |
| $\dfrac{d}{dx}[\operatorname{sen}(u)] = \cos(u)\dfrac{du}{dx}$ | $\dfrac{d}{dx}[\cos(u)] = -\operatorname{sen}(u)\dfrac{du}{dx}$ |
| $\dfrac{d}{dx}[\tan(u)] = \sec^2(u)\dfrac{du}{dx}$ | $\dfrac{d}{dx}[\cot(u)] = -\csc^2(u)\dfrac{du}{dx}$ |
| $\dfrac{d}{dx}[\sec(u)] = \sec(u)\tan(u)\dfrac{du}{dx}$ | $\dfrac{d}{dx}[\csc(u)] = -\csc(u)\cot(u)\dfrac{du}{dx}$ |
| $\dfrac{d}{dx}[\arcsen(u)] = \dfrac{1}{\sqrt{1-u^2}}\dfrac{du}{dx}$ | $\dfrac{d}{dx}[\arccos(u)] = \dfrac{-1}{\sqrt{1-u^2}}\dfrac{du}{dx}$ |
| $\dfrac{d}{dx}[\arctan(u)] = \dfrac{1}{1+u^2}\dfrac{du}{dx}$ | $\dfrac{d}{dx}[arccot(u)] = \dfrac{-1}{1+u^2}\dfrac{du}{dx}$ |
| $\dfrac{d}{dx}[arcsec(u)] = \dfrac{1}{\lvert u \rvert\sqrt{u^2-1}}\dfrac{du}{dx}$ | $\dfrac{d}{dx}[arccsc(u)] = \dfrac{-1}{\lvert u \rvert\sqrt{u^2-1}}\dfrac{du}{dx}$ |
| $\dfrac{d}{dx}[\operatorname{senh}(u)] = \cosh(u)\dfrac{du}{dx}$ | $\dfrac{d}{dx}[\cosh(u)] = \operatorname{senh}(u)\dfrac{du}{dx}$ |
| $\dfrac{d}{dx}[\tanh(u)] = sech^2(u)\dfrac{du}{dx}$ | $\dfrac{d}{dx}[coth(u)] = -csch^2(u)\dfrac{du}{dx}$ |
| $\dfrac{d}{dx}[sech(u)] = -sech(u)\tanh(u)\dfrac{du}{dx}$ | $\dfrac{d}{dx}[csch(u)] = -csch(u)coth(u)\dfrac{du}{dx}$ |