

FORMULÁRIO DE INTEGRAIS

1. $\int dx = x + C$
2. $\int \frac{d}{dx}[f(x)] = f(x) + C$
3. $\int [f(x) \pm g(x)] dx = \int f(x) dx \pm \int g(x) dx$
4. $\int af(x) dx = a \int f(x) dx$
5. $\int x^n dx = \frac{x^{n+1}}{n+1} + C, n \neq -1$
6. $\int u^n du = \frac{u^{n+1}}{n+1} + C, n \neq -1$
7. $\int \frac{du}{u} = \ln u + C, u > 0$
8. $\int a^u du = \frac{a^u}{\ln a} + C, a > 0, a \neq 1$
9. $\int e^u du = e^u + C$
10. $\int \operatorname{sen} u du = -\cos u + C$
11. $\int \cos u du = \operatorname{sen} u + C$
12. $\int \operatorname{tg} u du = \ln(\sec u) + C$
13. $\int \cot g u du = -\ln(\operatorname{cosec} u) + C$
14. $\int \sec u du = \ln(\sec u + \operatorname{tg} u) + C$
15. $\int \operatorname{cosec} u du = \ln(\operatorname{cosec} u - \cot g u) + C$
16. $\int \sec^2 u du = \operatorname{tg} u + C$
17. $\int \operatorname{cosec}^2 u du = -\cot g u + C$
18. $\int \sec u \operatorname{tg} u du = \sec u + C$
19. $\int \operatorname{cosec} u \cot g u du = -\operatorname{cosec} u + C$
20. $\int \frac{du}{\sqrt{a^2 - u^2}} = \operatorname{arcsen}\left(\frac{u}{a}\right) + C, a^2 > u^2, a \neq 0$
21. $\int \frac{du}{a^2 + u^2} = \frac{1}{a} \operatorname{arctg}\left(\frac{u}{a}\right) + C, a \neq 0$
22. $\int \frac{du}{u\sqrt{u^2 - a^2}} = \frac{1}{a} \operatorname{arcsec}\left(\frac{u}{a}\right) + C, u^2 > a^2, u \neq 0, a \neq 0$
23. $\int \frac{du}{u^2 - a^2} = \frac{1}{2a} \ln\left(\frac{u-a}{u+a}\right) + C, u^2 > a^2, a \neq 0$
24. $\int \frac{du}{a^2 - u^2} = \frac{1}{2a} \ln\left(\frac{a+u}{a-u}\right) + C, a^2 > u^2, a \neq 0$
25. $\int \frac{du}{\sqrt{u^2 + a^2}} = \ln\left(u + \sqrt{u^2 + a^2}\right) + C$
26. $\int \frac{du}{\sqrt{u^2 - a^2}} = \ln\left(u + \sqrt{u^2 - a^2}\right) + C, u^2 > a^2$
27. $\int \sqrt{a^2 - u^2} du = \frac{1}{2} u \sqrt{a^2 - u^2} + \frac{1}{2} a^2 \operatorname{arcsen}\left(\frac{u}{a}\right) + C, a^2 > u^2, a \neq 0$
28. $\int \sqrt{u^2 \pm a^2} du = \frac{1}{2} u \sqrt{u^2 \pm a^2} \pm \frac{1}{2} a^2 \ln\left(u + \sqrt{u^2 \pm a^2}\right) + C, u^2 > a^2 \text{ em } \int \sqrt{u^2 - a^2} du$

29. FÓRMULA DE REDUÇÃO:

$$\int \frac{dx}{(x^2 + a^2)^n} = \frac{1}{2(n-1)a^2} \left[\frac{x}{(x^2 + a^2)^{n-1}} + (2n-3) \int \frac{dx}{(x^2 + a^2)^{n-1}} \right]$$