

Formulário

[a e e são constantes; C é um parâmetro real; u é uma função de x]

INTEGRAIS

1. $\int adx = ax + C$	10. $\int u' \sec(u) dx = \ln \sec(u) + \tan(u) + C$
2. $\int u' u^n dx = \frac{u^{n+1}}{n+1} + C, \quad n \in \mathbb{R}, n \neq -1$	11. $\int u' \csc(u) dx = \ln \csc(u) - \cot(u) + C$
3. $\int \frac{u'}{u} dx = \ln u + C$	12. $\int u' \sec^2(u) dx = \tan(u) + C$
4. $\int u' e^u dx = e^u + C$	13. $\int u' \csc^2(u) dx = -\cot(u) + C$
5. $\int u' a^u dx = \frac{a^u}{\ln(a)} + C, \quad a > 0, a \neq 1$	14. $\int u' \sec(u) \tan(u) dx = \sec(u) + C$
6. $\int u' \sin(u) dx = -\cos(u) + C$	15. $\int u' \csc(u) \cot(u) dx = -\csc(u) + C$
7. $\int u' \cos(u) dx = \sin(u) + C$	16. $\int \frac{u'}{1+u^2} dx = \arctan(u) + C = -\operatorname{arccot}(u) + C$
8. $\int u' \tan(u) dx = \ln \sec(u) + C = -\ln \cos(u) + C$	17. $\int \frac{u'}{\sqrt{1-u^2}} dx = \arcsen(u) + C = -\arccos(u) + C$
9. $\int u' \cot(u) dx = \ln \sin(u) + C$	18. $\int \frac{u'}{ u \sqrt{u^2-1}} dx = \operatorname{arcsec}(u) + C = -\operatorname{arccsc}(u) + C$

INTEGRAIS: funções trigonométricas inversas

19. $\int \sin^{-1}(u).u' dx = u.\sin^{-1}(u) + \sqrt{1-u^2} + C$	22. $\int \cos^{-1}(u).u' dx = u.\cos^{-1}(u) - \sqrt{1-u^2} + C$
20. $\int \tan^{-1}(u).u' dx = u.\tan^{-1}(u) - \ln(\sqrt{1+u^2}) + C$	23. $\int \cot^{-1}(u).u' dx = u.\cot^{-1}(u) + \ln(\sqrt{1+u^2}) + C$
21. $\int \sec^{-1}(u).u' dx = u.\sec^{-1}(u) - \ln u + \sqrt{u^2-1} + C$	24. $\int \csc^{-1}(u).u' dx = u.\csc^{-1}(u) + \ln u + \sqrt{u^2-1} + C$

INTEGRAIS: potências de funções trigonométricas

(n inteiro positivo; n > 1 nas fórmulas 27 -- 32)

25. $\int \sin^n(u).u' dx = -\frac{1}{n} \sin^{n-1}(u) \cos(u) + \frac{n-1}{n} \int \sin^{n-2}(u).u' dx$
26. $\int \cos^n(u).u' dx = \frac{1}{n} \cos^{n-1}(u) \sin(u) + \frac{n-1}{n} \int \cos^{n-2}(u).u' dx$
27. $\int \tan^n(u).u' dx = \frac{1}{n-1} \tan^{n-1}(u) - \int \tan^{n-2}(u).u' dx$
28. $\int \cot^n(u).u' dx = \frac{1}{n-1} \cot^{n-1}(u) - \int \cot^{n-2}(u).u' dx$

29. $\int \sec^n(u).u' dx = \frac{1}{n-1} \sec^{n-2}(u) \tan(u) + \frac{n-2}{n-1} \int \sec^{n-2}(u).u' dx$
30. $\int \csc^n(u).u' dx = \frac{1}{n-1} \csc^{n-2}(u) \cot(u) + \frac{n-2}{n-1} \int \csc^{n-2}(u).u' dx$
31. $\int \tan^n(u).u' dx = \frac{1}{n-1} \tan^{n-1}(u) - \int \tan^{n-2}(u).u' dx$
32. $\int \cot^n(u).u' dx = \frac{1}{n-1} \cot^{n-1}(u) - \int \cot^{n-2}(u).u' dx$

EXPANSÃO BINOMIAL

$$(x + y)^n = \binom{n}{0} x^n + \binom{n}{1} x^{n-1} y + \binom{n}{2} x^{n-2} y^2 + \dots + \binom{n}{k} x^{n-k} y^k + \dots + \binom{n}{n} y^n$$

FÓRMULAS TRIGONOMÉTRICAS

$\sin(\alpha \pm \beta) = \sin(\alpha) \cos(\beta) \pm \sin(\beta) \cos(\alpha)$
$\cos(\alpha \pm \beta) = \cos(\alpha) \cos(\beta) \mp \sin(\alpha) \sin(\beta)$
$\cos^2(\alpha) = \frac{1}{2}(1 + \cos(2\alpha))$
$\sin^2(\alpha) = \frac{1}{2}(1 - \cos(2\alpha))$