

## Tabela de Derivadas onde $u$ e $v$ são funções

1) $y = c \Rightarrow y' = 0$ , ( $c$ , constante arbitrária)	23) $y = \operatorname{arccotg} u \Rightarrow y' = -\frac{u'}{1+u^2}$
2) $y = u + v \Rightarrow y' = u' + v'$	24) $y = \operatorname{arcsec} u \Rightarrow y' = \frac{u'}{u \cdot \sqrt{u^2 - 1}}$
3) $y = cu \Rightarrow y' = cu'$ , ( $c$ , constante arbitrária)	25) $y = \operatorname{arccossec} u \Rightarrow y' = -\frac{u'}{u \cdot \sqrt{u^2 - 1}}$
4) $y = uv \Rightarrow y' = u'v + uv'$	26) $y = \sinh u \Rightarrow y' = \cosh u \cdot u'$
5) $y = uvw \Rightarrow y' = u'vw + v'uw + uvw'$	27) $y = \cosh u \Rightarrow y' = \sinh u \cdot u'$
6) $y = u^n \Rightarrow y' = nu^{n-1} \cdot u'$	28) $y = \operatorname{tgh} u \Rightarrow y' = \operatorname{sech}^2 u \cdot u'$
7) $y = \frac{u}{v} \Rightarrow y' = \frac{u'v - uv'}{v^2}$	29) $y = \operatorname{cotgh} u \Rightarrow y' = -\operatorname{cosech}^2 u \cdot u'$
8) $y = \frac{u}{c} \Rightarrow y' = \frac{u'}{c}$ , ( $c$ , constante arbitrária)	30) $y = \operatorname{sech} u \Rightarrow y' = -\operatorname{sech} u \cdot \operatorname{tgh} u \cdot u'$
9) $y = \ln u \Rightarrow y' = \frac{u'}{u}$	31) $y = \operatorname{cosech} u \Rightarrow y' = -\operatorname{cosech} u \cdot \operatorname{cotgh} u \cdot u'$
10) $y = \log_a u \Rightarrow \frac{u'}{u} \log_a e$	32) $y = \operatorname{argsenh} u \Rightarrow y' = \frac{u'}{\sqrt{u^2 + 1}}$
11) $y = a^u \Rightarrow y' = a^u \cdot \ln a \cdot u'$	33) $y = \operatorname{argcosh} u \Rightarrow y' = \frac{u'}{\sqrt{u^2 - 1}}$
12) $y = e^u \Rightarrow y' = e^u \cdot u'$	34) $y = \operatorname{arg} \operatorname{tgh} u \Rightarrow y' = \frac{u'}{1 - u^2}$
13) $y = u^v \Rightarrow y' = v \cdot u^{v-1} \cdot u' + u^v \cdot \ln u \cdot v'$	35) $y = \operatorname{arg} \operatorname{cot} h u \Rightarrow y' = \frac{u'}{u^2 - 1}$
14) $y = \operatorname{sen} u \Rightarrow y' = \cos u \cdot u'$	36) $y = \operatorname{arg} \operatorname{sech} u \Rightarrow y' = -\frac{u'}{u \cdot \sqrt{1 - u^2}}$
15) $y = \cos u \Rightarrow y' = -\operatorname{sen} u \cdot u'$	37) $y = \operatorname{arg} \operatorname{cosech} u \Rightarrow y' = -\frac{u'}{ u  \cdot \sqrt{1 - u^2}}$
16) $y = \operatorname{tg} u \Rightarrow y' = \sec^2 u \cdot u'$	38) $(f \circ u)'(x) = f'(u(x)) \cdot u'(x)$ (função composta)
17) $y = \operatorname{cotg} u \Rightarrow y' = -\operatorname{cosec}^2 u \cdot u'$	ou
18) $y = \sec u \Rightarrow y' = \sec u \cdot \operatorname{tg} u \cdot u'$	$\frac{df(u)}{dx} = \frac{df}{du} \cdot \frac{du}{dx}$
19) $y = \operatorname{cosec} u \Rightarrow y' = -\operatorname{cosec} u \cdot \operatorname{cotg} u \cdot u'$	
20) $y = \operatorname{arcsen} u \Rightarrow y' = \frac{u'}{\sqrt{1 - u^2}}$	
21) $y = \operatorname{arccos} u \Rightarrow y' = -\frac{u'}{\sqrt{1 - u^2}}$	
22) $y = \operatorname{arctg} u \Rightarrow y' = \frac{u'}{1 + u^2}$	

### Tabela de Integrais onde $u$ e $v$ são funções

1. $\int du = u + C$	16. $\int \cos u \, du = \sin u + C$
2. $\int u^n \, du = \frac{u^{n+1}}{n+1} + C, \quad n \neq -1$	17. $\int \operatorname{tg} u \, du = \ln \sec u  + C$
3. $\int \frac{1}{u} \, du = \ln u  + C$	18. $\int \operatorname{cotg} u \, du = \ln \sin u  + C$
4. $\int a^u \, du = \frac{a^u}{\ln a} + C, \quad a > 0, \quad a \neq 1$	19. $\int \sec u \, du = \ln \sec u + \operatorname{tg} u  + C$
5. $\int e^u \, du = e^u + C$	20. $\int \operatorname{cosec} u \, du = \ln \operatorname{cosec} u - \operatorname{cotg} u  + C$
6. $\int u e^u \, du = (u - 1)e^u + C$	21. $\int \sec u \operatorname{tg} u \, du = \sec u + C$
7. $\int u^n e^u \, du = u^n e^u - n \int u^{n-1} e^u \, du$	22. $\int \operatorname{cosec} u \operatorname{cotg} u \, du = -\operatorname{cosec} u + C$
8. $\int \frac{1}{1+e^u} \, du = u - \ln(1+e^u) + C$	23. $\int \sec^2 u \, du = \operatorname{tg} u + C$
9. $\int \frac{1}{1+e^{nu}} \, du = u - \frac{1}{n} \ln(1+e^{nu}) + C$	24. $\int \operatorname{cosec}^2 u \, du = -\operatorname{cotg} u + C$
10. $\int \ln u \, du = u(-1 + \ln u) + C$	25. $\int \frac{du}{u^2 + a^2} = \frac{1}{a} \operatorname{arctg} \frac{u}{a} + C$
11. $\int u \ln u \, du = \frac{u^2}{4} (-1 + 2 \ln u) + C$	26. $\int \frac{du}{u^2 - a^2} = \frac{1}{2a} \ln \left  \frac{u-a}{u+a} \right  + C, \quad u^2 > a^2$
12. $\int u^n \ln u \, du = \frac{u^{n+1}}{(n+1)^2} [-1 + (n+1) \ln u] + C, \quad n \neq -1$	27. $\int \frac{du}{\sqrt{u^2 + a^2}} = \ln \left  u + \sqrt{u^2 + a^2} \right  + C$
13. $\int (\ln u)^2 \, du = u[2 - 2 \ln u + (\ln u)^2] + C$	28. $\int \frac{du}{\sqrt{u^2 - a^2}} = \ln \left  u + \sqrt{u^2 - a^2} \right  + C$
14. $\int (\ln u)^n \, du = u(\ln u)^n - n \int (\ln u)^{n-1} \, du$	29. $\int \frac{du}{u\sqrt{u^2 - a^2}} = \frac{1}{a} \operatorname{arcsec} \left  \frac{u}{a} \right  + C$
15. $\int \sin u \, du = -\cos u + C$	30. $\int \frac{du}{\sqrt{a^2 - u^2}} = \frac{1}{a} \operatorname{arcsen} \left  \frac{u}{a} \right  + C$

### Integral por partes

$$\int u \, dv = uv - \int v \, du$$