

DERIVADAS E INTEGRALES

Reglas básicas de derivación

1. $\frac{d}{dx} [cu] = cu'$
2. $\frac{d}{dx} [u \pm v] = u' \pm v'$
3. $\frac{d}{dx} [uv] = uv' + vu'$
4. $\frac{d}{dx} \left[\frac{u}{v} \right] = \frac{vu' - uv'}{v^2}$
5. $\frac{d}{dx} [c] = 0$
6. $\frac{d}{dx} [u^n] = nu^{n-1}u'$
7. $\frac{d}{dx} [x] = 1$
8. $\frac{d}{dx} [|u|] = \frac{u}{|u|} (u'), u \neq 0$
9. $\frac{d}{dx} [\ln u] = \frac{u'}{u}$
10. $\frac{d}{dx} [e^u] = e^u u'$
11. $\frac{d}{dx} [\text{sen } u] = (\cos u)u'$
12. $\frac{d}{dx} [\cos u] = -(\text{sen } u)u'$
13. $\frac{d}{dx} [\text{tg } u] = (\sec^2 u)u'$
14. $\frac{d}{dx} [\text{ctg } u] = -(\text{cosec } u)^2 u'$
15. $\frac{d}{dx} [\sec u] = (\sec u \text{ tg } u)u'$
16. $\frac{d}{dx} [\text{cosec } u] = -(\text{cosec } u \text{ ctg } u)u'$
17. $\frac{d}{dx} [\arcsen u] = \frac{u'}{\sqrt{1-u^2}}$
18. $\frac{d}{dx} [\arccos u] = \frac{-u'}{\sqrt{1-u^2}}$
19. $\frac{d}{dx} [\text{arctg } u] = \frac{u'}{1+u^2}$
20. $\frac{d}{dx} [\text{arcctg } u] = \frac{-u'}{1+u^2}$
21. $\frac{d}{dx} [\text{arcsec } u] = \frac{u'}{|u|\sqrt{u^2-1}}$
22. $\frac{d}{dx} [\text{arccosec } u] = \frac{-u'}{|u|\sqrt{u^2-1}}$

Fórmulas básicas de integración

1. $\int kf(u) du = k \int f(u) du$
2. $\int [f(u) \pm g(u)] du = \int f(u) du \pm \int g(u) du$
3. $\int du = u + C$
4. $\int u^n du = \frac{u^{n+1}}{n+1} + C, n \neq -1$
5. $\int \frac{du}{u} = \ln |u| + C$
6. $\int e^u du = e^u + C$
7. $\int \text{sen } u du = -\cos u + C$
8. $\int \cos u du = \text{sen } u + C$
9. $\int \text{tg } u du = -\ln |\cos u| + C$
10. $\int \text{ctg } u du = \ln |\text{sen } u| + C$
11. $\int \sec u du = \ln |\sec u + \text{tg } u| + C$
12. $\int \text{cosec } u du = -\ln |\text{cosec } u + \text{ctg } u| + C$
13. $\int \sec^2 u du = \text{tg } u + C$
14. $\int \text{cosec}^2 u du = -\text{ctg } u + C$
15. $\int \sec u \text{ tg } u du = \sec u + C$
16. $\int \text{cosec } u \text{ ctg } u du = -\text{cosec } u + C$
17. $\int \frac{du}{\sqrt{a^2 - u^2}} = \arcsen \frac{u}{a} + C$
18. $\int \frac{du}{a^2 + u^2} = \frac{1}{a} \text{arctg } \frac{u}{a} + C$
19. $\int \frac{du}{u\sqrt{u^2 - a^2}} = \frac{1}{a} \text{arcsec } \frac{|u|}{a} + C$