REGLAS BASICAS DE INTEGRACION

1. $\int dx = x + C$
2. $\int Kdx = Kx + C$
3. $\int Kf(x)dx = k\int f(x)dx$
4. $\int [f(x) \pm g(x)]dx = \int f(x)dx \pm \int g(x)dx$
5. $\int (u+v)dx = \int udx + \int vdx$
6. $\int x^n dx = \frac{x^{n+1}}{n+1} + C \; donde \; n \neq 1$
7. $\int \frac{1}{x}dx = \ln|x| + C$
8. $\int a^x dx = \frac{1}{\ln(a)}a^x + C \; donde \; a > 0$
9. $\int e^x dx = e^x + C$
10. $\int \sqrt[n]{x}dx = \int x^{1/n}dx$
11. $\int \text{sen}\, x dx = -\cos x + C$
12. $\int \cos x dx = \text{sen}\, x + C$
13. $\int \text{tag}\, x dx = -\ln(\cos x) + C$
14. $\int \frac{1}{\sqrt{1-x^2}}dx = arcsen\, x + C$
15. $\int \frac{1}{1+x^2}dx = arctang\, x + C$
16. $\int \frac{dx}{x\, ln_a} = log_a x + C$
17. $\int \frac{1}{cos^2 x}dx = tag\, x + C$
18. $\int \frac{-1}{sen^2 x}dx = cotang\, x + C$
19. $\int \frac{-dx}{\sqrt{1-x^2}} = arcos\, x + C$
20. $\int sec^2 x dx = tang\, x + C$
21. $\int csc^2 x dx = -cotag\, x + C$
22. $\int \ln(x)\, dx = x.\ln(x) - x + C$
23. $\int log_a(x)dx = \frac{x}{\ln(a)}(\ln(x) - 1) + C$
24. $\int cotag(x)dx = \ln|sen\, x| + C$
25. $\int \sec x dx = \ln|\sec x + tag\, x|$
26. $\int csc\, x dx = \ln\, |\csc x - cotag\, x|$
27. $\int \sec x.tagx dx = \sec x + C$
28. $\int \csc x\, .cotagx dx = -\csc x + C$
29. $\int sen^2\, x dx = \frac{x}{2} - \frac{sen2x}{4} + C$
30. $\int cos^2 x dx = \frac{x}{2} + \frac{sen2x}{4} + C$
31. $\int tag^2 x dx = (tag\, x - x) + C$
32. $\int cotag^2\, x dx = (-cotag\, x - x) + C$

C = Constante de Integración

K = Constante

DERIVACION

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

Suma de Fracciones

$$a \cdot \frac{b}{c} = \frac{(a \cdot c) + b}{c}$$

Binomio al Cuadrado

$$(a \pm b)^2 = a^2 \pm 2ab \pm b^2$$

Potenciación

$$x^{-1} = \frac{1}{x^1}$$

(Puede aplicarse a la inversa)

Potencia de Radicales

$$(\sqrt[n]{x})^n = x$$

Donde n es **≥ 0**

$$(x^2)^2 = x^{2 \cdot 2}$$

Integración Por Partes

$$\int u \cdot dv = u \cdot v - \int v \cdot du$$

I.L.A.T.E

- Inversa = $sen^{-1} cos^{-1}$
- Logarítmica = Ln
- Algebraica = $x^n \;\; 3x$
- Trigonométrica = sen cos
- Exponencial = e^x