FORMULARIO DE INTEGRALES DIRECTAS

1. $-\int dx = x + C$
2. $-\int [f(x) \pm g(x)]dx = \int f(x)dx \pm \int g(x)$
3. $-\int k \cdot f(x)dx = k \cdot \int f(x)dx$
4. $-\int x^n dx = \frac{x^{n+1}}{n+1} + C$
5. $-\int \frac{dx}{x+a} = \ln|x+a| + C$
6. $-\int a^x dx = \frac{a^x}{\ln a} + C$
7. $-\int e^{ax} dx = \frac{e^{ax}}{a} + C$
8. $-\int \operatorname{sen} x dx = -\cos x + C$
9. $-\int \cos x dx = \operatorname{sen} x + C$
10. $-\int \operatorname{tg} x dx = \ln|\sec x| + C = -\ln|\cos x| + C$
11. $-\int \cot x dx = \ln|\operatorname{sen} x| + C = -\ln|\cos ec x| + C$
12. $-\int \sec x dx = \ln|\sec x + \operatorname{tg} x| + C$
13. $-\int \cos ec x dx = \ln|\cos ec x - \cot x| + C$
14. $-\int \sec^2 dx = \operatorname{tg} x + C$
15. $-\int \cos ec x^2 dx = -\cot x + C$
16. $-\int \sec x \cdot \operatorname{tg} x dx = \sec x + C$
17. $-\int \cos ec x \cdot \cot x dx = -\cos ec x + C$
18. $-\int \frac{dx}{a^2 + x^2} = \frac{1}{a} \operatorname{arctg} \frac{x}{a} + C$
19. $-\int \frac{dx}{a^2 - x^2} = \frac{1}{2a} \ln\left|\frac{a+x}{a-x}\right| + C$
20. $-\int \frac{dx}{x^2 - a^2} = \frac{1}{2a} \ln\left|\frac{x-a}{x+a}\right| + C$
21. $-\int \frac{dx}{\sqrt{a^2 + x^2}} = \ln\left(x + \sqrt{a^2 + x^2}\right) + C$

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22. $-\int \frac{dx}{\sqrt{a^2 - x^2}} = \text{arcsen}\frac{x}{a} + C$

23. $-\int \frac{dx}{\sqrt{x^2 - a^2}} = \ln\left|x + \sqrt{x^2 - a^2}\right| + C$

24. $-\int \frac{dx}{x\sqrt{x^2 - a^2}} = \frac{1}{a}\text{arcsen}\frac{x}{a} + C$

25. $-\int \sqrt{a^2 + x^2}\,dx = \frac{1}{2}x\sqrt{a^2 + x^2} + \frac{1}{2}a^2 \ln\left(x + \sqrt{a^2 + x^2}\right) + C$

26. $-\int \sqrt{a^2 - x^2}\,dx = \frac{1}{2}x\sqrt{a^2 - x^2} + \frac{1}{2}a^2\text{arcsen}\frac{x}{a} + C$

27. $-\int \sqrt{x^2 - a^2}\,dx = \frac{1}{2}x\sqrt{x^2 - a^2} - \frac{1}{2}a^2 \ln\left(x + \sqrt{x^2 - a^2}\right) + C$

28. $-\int udv = uv - \int vdu$

29. $-\int g'(x)\cdot[g(x)]^n dx = \frac{1}{n+1}[g(x)]^{n+1} + C$

30. $-\int \frac{g'(x)}{g(x)}dx = \ln|g(x)| + C$

Sustitución trigonométrica :

Si el integrando es :	se usa la sustitución :	
1. $-\sqrt{a^2 - x^2}$	$x = a\,\text{sen}\alpha$	$dx = a\cos\alpha\cdot d\alpha$
2. $-\sqrt{a^2 + x^2}$	$x = a\,\text{tg}\alpha$	$dx = a\sec^2\alpha\cdot d\alpha$
3. $-\sqrt{x^2 - a^2}$	$x = a\sec\alpha$	$dx = a\sec\alpha\cdot\text{tg}\alpha\cdot d\alpha$

Centros de masa :

$$Xcm = \frac{1}{A}\int xdA$$

$$Ycm = \frac{1}{A}\int ydA$$

Volúmenes de revolución :

$$Vx = \pi\int [f(x)]^2 dx$$

$$Vy = 2\pi\int [f(x)]\cdot xdx$$