SI $F(x)$ ES LA ANTIDERIVADA DE $f(x)$ ENTONCES $F'(x) = f(x)$

$$\int f(x)\,dx = F(x) + C$$

PRIMITIVA

CONSTANTE DE I.T.

$$(x^2)' = 2x$$

1. $\int [f(x) \pm g(x)]\,dx = \int f(x)\,dx \pm \int g(x)\,dx$
2. $\int k \cdot f(x)\,dx = k \cdot \left[\int f(x)\,dx\right]$

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1. $\int x^{n}\,dx = \dfrac{x^{n+1}}{n+1} + C$ $n \in \mathbb{R}$

$$\int 2x\,dx = 2 \cdot \int x^1\,dx = 2\left[\frac{x^{1+1}}{1+1} + C\right] = \cancel{2} \cdot \frac{x^2}{\cancel{2}} + C$$

$x^2 + C \quad (x^2)' = 2x$

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2. $\int x^{-1}\,dx = \int \frac{1}{x}\,dx = \boxed{\ln|x| + C}$
3. $\int e^x\,dx = e^x + C$
4. $\int e^{ax}\,dx = \dfrac{e^{ax}}{a} + C \Leftarrow$ $\int e^{2x}\,dx = \dfrac{e^{2x}}{2} + C$
5. $\int \operatorname{sen}(x)\,dx = -\cos(x) + C$
6. $\int \cos(x)\,dx = \operatorname{sen}(x) + C$
7. $\int \cos(ax)\,dx = \frac{1}{a} \cdot \operatorname{sen}(ax) + C$

$$\int \cos(5x)\,dx = \frac{1}{5} \cdot \operatorname{sen}(5x) + C$$

8. $\int a^x\,dx = a^x\,dx \Leftarrow \dfrac{a^x}{\ln(a)} + C$
9. $\int \sqrt{x}\,dx \Leftarrow \int (x)^{1/2}\,dx \Leftarrow \dfrac{x^{1/2+1}}{1/2+1} + C = \dfrac{x^{3/2}}{3/2} + C$

$\boxed{\frac{2}{3} \cdot x^{3/2} + C}$

10. $\int k\,dx = kx + C \Leftarrow k \cdot \int 1\,dx = x \cdot k = kx + C$
11. $\int \dfrac{1}{x^2+1}\,dx = \int \dfrac{dx}{x^2+1} = \boxed{\operatorname{arctg}(x) + C}$

$$\int \frac{x^3}{3}\,dx$$