INTEGRALES

$$f(x) \xrightarrow{\text{Derivo}} f'(x)$$

Integrando

PRIMITIVA

FUNCIÓN $\longrightarrow$ PRIMITIVA

$2x \longrightarrow x^2$ $\left\{ \begin{array}{l} x^2 \\ x^2+1 \\ x^2-\sqrt{7} \\ x^2-1 \end{array} \right.$

$\frac{1}{x} \longrightarrow \ln x$

$e^x \longrightarrow e^x$

$\operatorname{sen} x \longrightarrow -\cos x$

INTEGRAL ES EL CONJUNTO DE PRIMITIVAS

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

$$\int 2x\,dx = x^2 + C$$

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$$\int \cos x\,dx = \operatorname{sen} x + C$$

$$\int (1+\operatorname{tg}^2 x)\,dx = \operatorname{tg} x + C$$

$$\int 1\,dx = x + C$$

$$\int$$

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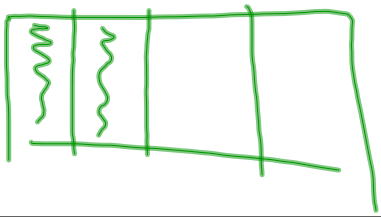
OPERACIONES

$$\int [f(x) \pm g(x)]\,dx = \int f(x)\,dx \pm \int g(x)\,dx$$

$$\int [k\,f(x)]\,dx = k \int f(x)\,dx$$

$$\int [f(x)\cdot g(x)]\,dx \neq \int f(x)\,dx \int g(x)\,dx$$

$$\int \frac{f(x)}{g(x)}\,dx \neq \frac{\int f(x)\,dx}{\int g(x)\,dx}$$



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$$\int 1\,dx = x + C$$

$$\int x^n\,dx = \frac{x^{n+1}}{n+1} + C$$

$$\int \frac{1}{2\sqrt{x}}\,dx = \sqrt{x} + C$$

$$\int \frac{1}{n\sqrt[n]{x^{n-1}}}\,dx = \sqrt[n]{x} + C$$

$$\int a^x\,dx = \frac{a^x}{\ln a} + C$$

$$\int e^x\,dx = e^x + C$$

$$x^3 \xrightarrow{D} 3x^2$$

$$\int x^7\,dx = \frac{x^8}{8} + C$$

$$\frac{1}{\cancel{8}}\cancel{8}x^7$$

$$\int x^5\,dx = \frac{x^6}{6} + C$$

$$\int 2^x\,dx = \frac{2^x}{\ln 2} + C$$

$$\frac{1}{\cancel{\ln 2}} 2^x \cdot \cancel{\ln 2}$$

$$2^x \xrightarrow{D} 2^x \ln 2$$

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$\int \frac{1}{x}\,dx = \ln|x| + C$

$\int \operatorname{sen} x\,dx = -\cos x + C$

$\int \cos x\,dx = \operatorname{sen} x + C$

$\int (1+\operatorname{tg}^2 x)\,dx = \int \frac{1}{\cos^2 x}\,dx = \operatorname{tg} x + C$

$\int \frac{1}{\sqrt{1-x^2}}\,dx = \operatorname{arcsen} x + C$

$\int \frac{1}{1+x^2}\,dx = \operatorname{arctg} x + C$

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$\int x^3 + x\,dx = \frac{x^4}{4} + \frac{x^2}{2} + C$

$\int 2x^7\,dx = 2 \cdot \frac{x^8}{8} + C = \frac{x^8}{4} + C$

$\int \frac{x^6}{2}\,dx = \frac{1}{2}\int x^6\,dx = \frac{1}{2}\frac{x^7}{7} + C = \frac{x^7}{14} + C$

$\int \sqrt{x}\,dx = \int x^{1/2}\,dx = \frac{x^{3/2}}{3/2} + C$

$= \frac{2}{3}\sqrt{x^3} + C$

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$\int \sqrt[3]{2x}\,dx = \sqrt[3]{2}\int x^{1/3}\,dx$

$\sqrt[3]{2}\,\frac{x^{4/3}}{4/3} + C = \frac{3}{4}\sqrt[3]{2x^4} + C$

$\int \frac{3}{\sqrt[7]{x^5}}\,dx = 3\int x^{-5/7}\,dx$

$3\,\frac{x^{2/7}}{2/7} + C = \frac{21}{2}\sqrt[7]{x^2} + C$

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$\int 2\operatorname{sen} x + 3^x + \sqrt{7}\,dx$

$= -2\cdot\cos x + \frac{3^x}{\ln 3} + \sqrt{7}\,x + C$

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