

INTEGRALS

PRIMITIVES i INTEGRALS INDEFINIDES

primitiva

primitiva

primitiva

primitiva

⋮

$$F(x) = x^3 + 2x$$

$$F(x) + 1 = x^3 + 2x + 1$$

$$F(x) + 2 = x^3 + 2x + 2$$

$$F(x) - 1 = x^3 + 2x - 1$$

⋮

integrar
←

→
derivar

$$F'(x) = f(x) = 3x^2 + 2$$

$$(F(x) + 1)' = f(x) = 3x^2 + 2$$

$$(F(x) + 2)' = f(x) = 3x^2 + 2$$

$$(F(x) - 1)' = f(x) = 3x^2 + 2$$

"INTEGRAL INDEFINIDA"

es representa

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

$$x^3 + 2x + C = \int (3x^2 + 2) dx$$

integral indef. derivada

* propietats:

$$1. \int k \cdot f(x) dx = k \cdot \int f(x) dx$$

$$2. \int [f(x) \pm g(x)] dx = \int f(x) dx \pm \int g(x) dx$$

Exemples:

$$\int 3 \cos x dx = 3 \cdot \int \cos x dx = 3 \sin x + C$$

$$\int (e^x + \sin x) dx = \int e^x dx + \int \sin x dx = e^x - \cos x + C$$

→ amb funcions compostes

tenim en compte la **REGLA** de la **CADENA**

$$\int [g(x)]' dx = \int (F[g(x)])' dx = \int \underline{F'(g(x)) \cdot g'(x)} dx$$

Exemple: $\int \underbrace{\cos x^2}_{\sin' x^2} \cdot \underbrace{2x}_{(x^2)'} dx = \sin(x^2) + C$