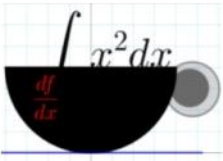


Día 2



Petit-dejéuner #2

Primitivas de una función de tipo exponencial.

$$(i) \int e^{2x} dx$$

$$(ii) \int 2xe^{x^2} dx$$

$$(iii) \int \frac{5e^{2x}}{3} + 1 dx$$

$$(iv) \int 1 + \frac{3e^{\sqrt{x}}}{\sqrt{x}} dx$$

REGLA DE ORO

$$\int e^x dx = e^x + k \quad \int a^x dx = \frac{a^x}{\ln a} + k$$

REGLA DE ORO + REGLA DE LA CADENA

$$\int f'(x) \cdot e^{f(x)} dx = e^{f(x)} + k \quad \int f'(x) a^{f(x)} dx = \frac{a^{f(x)}}{\ln a} + k$$

(i) $\int e^{2x} dx$ →

Si FUEBA	ESTOU REJ
$\int 2e^{2x} dx$	$= e^{2x} + k$

MÉTODO 1 → $\int e^{2x} dx = \int \frac{1}{2} \cdot 2e^{2x} dx = \frac{1}{2} \int 2e^{2x} dx = \frac{1}{2} e^{2x} + k$

$$\text{REGLA} \int e^{\alpha x} dx = \frac{1}{\alpha} e^{\alpha x} + k$$

(ii) $\int 2x e^{x^2} dx = \left[\int f'(x) e^{f(x)} dx \right] = e^{x^2} + k$

$\int \begin{matrix} \boxed{2x} \\ \downarrow f'(x) \end{matrix} \begin{matrix} e^{x^2} \\ \downarrow f(x) \end{matrix} dx$

(iii) $\int \frac{5e^{2x}}{2} + 1 dx = \left[\frac{5}{2} \int e^{2x} dx + \int 1 dx \right] = \frac{5}{2} \cdot \frac{1}{2} e^{2x} + x + k$

(iv) $\int 1 + \frac{3e^{\sqrt{x}}}{\sqrt{x}} dx = \int 1 dx + \int \frac{3e^{\sqrt{x}}}{\sqrt{x}} dx =$

$= x + 3 \int \frac{1}{\sqrt{x}} e^{\sqrt{x}} dx = x + 3 \int \frac{1}{2\sqrt{x}} e^{\sqrt{x}} dx =$

$= x + 6 \int \frac{1}{2\sqrt{x}} e^{\sqrt{x}} dx = x + 6 e^{\sqrt{x}} + k$

$\int \begin{matrix} \boxed{\frac{1}{2\sqrt{x}}} \\ \downarrow f'(x) \end{matrix} \begin{matrix} e^{\sqrt{x}} \\ \downarrow f(x) \end{matrix} dx$