

Día 3



Dejeuner #3

Cocido maragato de logaritmos y racionales con factores constantes

$$(i) \int \left(\frac{3}{x-2} + \frac{1}{3x} \right) dx \quad (ii) \int \left(\frac{-5}{x+7} - \frac{2}{x-1} \right) dx \quad (iii) \int \frac{1}{(x+2)^2} dx$$

$$(i) \int \left(\frac{1}{x-2} + \frac{1}{x^2} \right) dx \quad (ii) \int \left(\frac{1}{(x+7)^2} - \frac{1}{(x-1)^2} \right) dx \quad (iii) \int \left(\frac{1}{(x+2)^2} - \frac{x}{x^2+3} \right) dx$$

TODAS SON DEL TIPO LOGARITMO (Dejeuner #3) ó
POTENCIALES (Dejeuner #2)

RECUERDA

$$\int \frac{dx}{(x+3)^3} = \int (x+3)^{-3} dx = \frac{(x+3)^{-2}}{-2} = \frac{-1}{2(x+3)^2}$$

$$(i) \int \frac{3}{x-2} + \frac{1}{3x} dx = \int \frac{3}{x-2} dx + \int \frac{1}{3x} dx =$$

$$= 3 \ln(x-2) + \frac{1}{3} \ln x + k = \ln(x-2)^3 + \ln \sqrt[3]{x} + k$$

logaritmos

$$= \ln(x-2)^3 \sqrt[3]{x} + k$$

$$(ii) \int \frac{-5}{x+7} - \frac{2}{x-1} dx = -5 \int \frac{dx}{x+7} - 2 \int \frac{dx}{x-1} = -5 \ln(x+7) - 2 \ln(x-1) + k$$

$$(iii) \int \frac{dx}{(x+2)^2} = \int (-1) \frac{(-1)}{(x+2)^2} dx = - \int \frac{-1}{(x+2)^2} dx = \frac{-1}{x+2} + k$$

$$\int \frac{1}{(x+2)^2} = \int (-1) \frac{1}{(x+2)^2} dx = - \int \frac{1}{(x+2)^2} dx = \frac{1}{x+2} + k$$

NATURAL

$$(iv) \int \frac{1}{x-2} + \frac{1}{x^2} dx = \int \frac{1}{x-2} dx + \int \frac{1}{x^2} dx = \ln(x-2) - \frac{1}{x} + k$$

$$(v) \int \frac{1}{(x+7)^2} - \frac{1}{(x-1)^2} dx = \int \frac{1}{(x+7)^2} dx - \int \frac{1}{(x-1)^2} dx =$$

$$= -\frac{1}{x+7} - \frac{1}{x-1} + k = \frac{8-2x}{x^2-8x+7} + k$$

$$(vi) \int \frac{1}{(x+2)^2} - \frac{x}{2(x^2+3)} dx = \frac{-1}{x+2} - \frac{1}{2} \ln(x^2+3)$$