

$$\int \frac{e^{3x} - e^x}{e^{2x} + 1} dx ; \quad \text{Utilizar C.V.}$$

$$\text{Nota: } e^{3x} = (e^x)^3$$

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

$$\left\{ \begin{array}{l} e^x = t \\ \ln e^x = \ln t \Rightarrow x = \ln t \\ dx = \frac{1}{t} dt \end{array} \right\}$$

$$(*) = \int \frac{t^3 - t}{t^2 + 1} \cdot \frac{1}{t} dt = \int \frac{t^2 - 1}{t^2 + 1} dt = (**)$$

$$\left\{ \begin{array}{l} \frac{t^2 - 1}{t^2 + 1} \quad \frac{t^2 + 1}{1} \\ 0 - 2 \end{array} \right\}$$

$$(**) = \int \left(1 + \frac{-2}{t^2 + 1} \right) dt =$$

$$= t - 2 \arctg t + C = e^x - 2 \arctg e^x + C$$

\uparrow
 $e^x = t$