$$\frac{d^2y}{dt^2} - 8\frac{dy}{dt} + 16y = 5e^{4t}$$

$$\frac{d^2y}{dt^2} - 8\frac{dy}{dt} + 16y = 0$$

$$m^2 - 8m + 16 = 0$$

$$m_1 = 4 \quad m_2 = 4 \qquad m_1 = m_2 \in \mathbb{R}$$

CASO II.

$$(m-4)^2 = 0$$

$$y_H = C_1 e^{4t} + C_2 t e^{4t}$$

$$y_{NH} = Ae^{4t} + Bte^{4t}$$

$$\begin{bmatrix} y_1 & y_2 \\ y_1' & y_2' \end{bmatrix} \begin{bmatrix} A' \\ B' \end{bmatrix} = \begin{bmatrix} 0 \\ Q(t) \end{bmatrix}$$

$$\begin{bmatrix} A' \\ B' \end{bmatrix} = \begin{bmatrix} 0 \\ Q(t) \end{bmatrix} \begin{bmatrix} y_1 & y_2 \\ y_1' & y_2' \end{bmatrix}^{-1}$$

$$\frac{dy}{dx} + p(x)\,y = q(x)$$

$$SG \Rightarrow \quad y(x) = Ce^{-\int p(x)dx} + e^{-\int p(x)dx} \int e^{\int p(x)dy} \cdot q(x)\,dx$$

int(

cos(

solve(

exp(

diff(

sin(