SISTEMAS NO HOMOGENEOS

$$\frac{dx_1(t)}{dt} = a_{11} x_1(t) + a_{12} x_2(t) + \dots + a_{1n} x_n(t)$$

$$\frac{dx_2(t)}{dt} = a_{21} x_1(t) + a_{22} x_2(t) + \dots + a_{2n} x_n(t)$$

$$\vdots$$

$$\frac{dx_n(t)}{dt} = a_{n1} x_1(t) + a_{n2} x_2(t) + \dots + a_{nn} x_n(t)$$

$S(n)$ EDOL(1) cc. H.

$$\frac{d}{dt}\bar{X}(t) = A \cdot \bar{X}(t)$$

$$\bar{X}(t) = \left[e^{At}\right]\bar{X}(0)$$

Homogeneos

$$\frac{d}{dt}\bar{x}(t) = A \cdot \bar{x}(t) + \bar{b}(t) \longleftarrow$$

s(n) EDOL(1) cc NH

$$\bar{x}(t) = \left[e^{At}\right]\bar{x}(0) + \int_0^t e^{A(t-\tau)}\,\bar{b}(\tau)\,d\tau.$$

$$\left.\int_0^t e^{A(t-\tau)}\,\bar{b}(\tau)\,d\tau\right]_{t=0} = \begin{bmatrix} 0 \\ 0 \\ 0 \\ \vdots \\ 0 \end{bmatrix}$$

$$e^{At} \longrightarrow A$$

$$\frac{d}{dt} e^{At} = A e^{At}$$

$$\left[\frac{d}{dt} e^{At}\right] * \left[e^{At}\right]^{-1} = A$$

$$\left[\frac{d}{dt} e^{At}\right]_{t=0} = A$$

$$\frac{\partial^2 z}{\partial x^2} + a_1 \frac{\partial^2 z}{\partial x \partial y} + a_2 \frac{\partial^2 z}{\partial y^2} = z^2$$

EDenDP (2) L. H.

LiN. - $\begin{cases} \text{LINEALES} \\ \text{CUASILINEALES.} \\ \text{NO LINEALES} \end{cases}$

$$z_g(x, y) = f_1(x + a_1 y) + f_2(x + a_2 y).$$

si. $a_1 = a_2$

$$\begin{cases} z_g(x, y) = f_1(x + a_1 y) + x f_2(x + a_1 y) \\ z_g(x, y) = f_1(x + a_1 y) + y f_2(x + a_1 y). \end{cases}$$