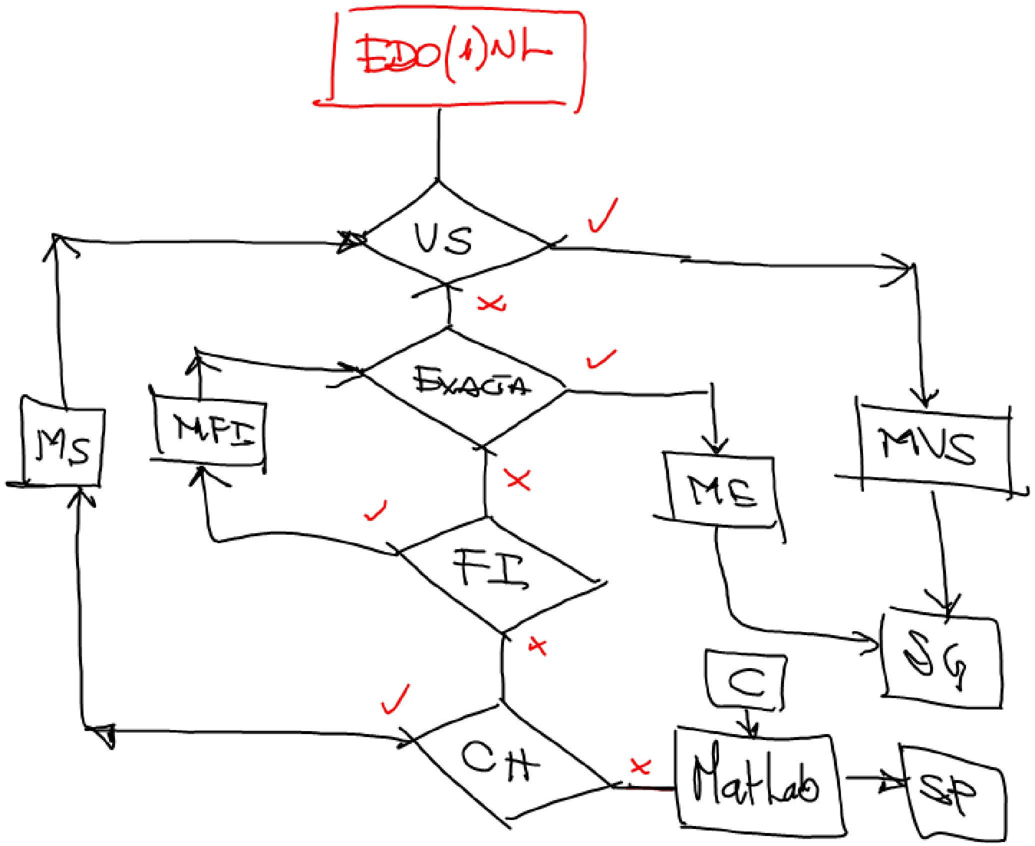
NO LINEAL DE PRIMER ORDEN

$$F(x, y, y') = 0 \qquad EDO(1)$$

$$\Longrightarrow \quad \frac{dy}{dx} = F(x, y) \qquad EDO(1)NL$$



$$\frac{dy}{dx} = F(x,y) \quad EDO(1)NL.$$

$$\frac{dy}{dx} = -\frac{M(x,y)}{N(x,y)}$$

$$N(x,y)\frac{dy}{dx} = -M(x,y)$$

$$\boxed{M(x,y) + N(x,y)\frac{dy}{dx} = 0}$$

Forma sintética.

EDO(1)NL.

MÉTODO DE VARIABLES SEPARABLES.

$$M(x,y) + N(x,y)\frac{dy}{dx} = 0$$

$$\downarrow \qquad\qquad \downarrow$$

$$P(x)\cdot Q(y) + R(x)\cdot S(y)\frac{dy}{dx} = 0$$

$$\frac{P(x)\cdot \cancel{Q(y)}}{\cancel{Q(y)}\cdot R(x)} + \frac{\cancel{R(x)}\, S(y)}{Q(y)\,\cancel{R(x)}}\frac{dy}{dx} = 0$$

$$\frac{P(x)}{R(x)} + \frac{S(y)}{Q(y)}\frac{dy}{dx} = 0$$

$$\frac{P(x)}{R(x)}dx + \frac{S(y)}{Q(y)}dy = 0$$

SG $$\int\frac{P(x)}{R(x)}dx + \int\frac{S(y)}{Q(y)}dy = C_1$$

83. $(y^2 + xy^2)\,y' + x^2 - yx^2 = 0.$

$$\overbrace{(x^2 - yx^2)}^{M} + \overbrace{(y^2 + xy^2)}^{N}\,y' = 0$$

$$\underbrace{x^2}_{P}\underbrace{(1-y)}_{Q} + \underbrace{(1+x)}_{R}\underbrace{y^2}_{S}\cdot\frac{dy}{dx} = 0$$

$$\int \frac{P}{R}\,dx + \int \frac{S}{Q}\,dy = C$$

$$\int \frac{x^2}{1+x}\,dx + \int \frac{y^2}{1-y}\,dy = C$$

$$\begin{array}{r|l} x^2 & x+1 \\ \hline -x^2 \quad\;\; & x-1 \\ 0 - x & \\ +x + 1 & \\ \hline 0 \quad 1 & \end{array}$$

$$\begin{array}{r|l} y^2 \quad\;\; & -y+1 \\ \hline -y^2 \quad\;\; & -y-1 \\ \hline 0 + y & \\ -y + 1 & \\ \hline 0 & \end{array}$$

$$\int \left(x - 1 + \frac{1}{1+x}\right)dx + \int \left(-y - 1 + \frac{1}{1-y}\right)dy = C$$

$$\boxed{\frac{x^2}{2} - x + L(1+x) - \frac{y^2}{2} - y - L(1-y) = C_1}$$

$F(x,y) = C$