

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

$$M(\lambda x, \lambda y) = \lambda^m M(x, y)$$

$$N(\lambda x, \lambda y) = \lambda^n N(x, y) \quad m=n$$

LA EDO(1)NL es de coeficientes homogéneos

$$(4x^2 - xy + y^2) + (x^2 - xy + 4y^2) \cdot y' = 0$$

$$(4(\lambda x)^{\overset{M(x,y)}{2}} - \lambda x(\lambda y) + (\lambda y)^{\overset{N(x,y)}{2}} = \lambda^2(4x^2) - \lambda^2(x)(y) + \lambda^2 y^2$$

$$((\lambda x)^2 - (\lambda x)(\lambda y) + 4(\lambda y)^2 = \lambda^2(4x^2 - xy + y^2) \quad m=2$$

$$= \lambda^2 x^2 - \lambda^2 xy + \lambda^2 4y^2 \quad m=n$$

$$= \lambda^2(x^2 - xy + 4y^2) \quad n=2$$

$$M(x, y) = P(x) Q(y)$$

$$N(x, y) = R(x) S(y)$$

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

$$y' = \frac{2xy}{3x^2 - y^2}$$

$$x^2 y^3 - 6xy^4 + 4x^3 y + 2y^2 = C_1$$

SOL
↑ GRAL

$$F(x, y) = C_1$$

ECUA

$$\frac{\partial F}{\partial x} + \frac{\partial F}{\partial y} \cdot \frac{dy}{dx} = 0$$

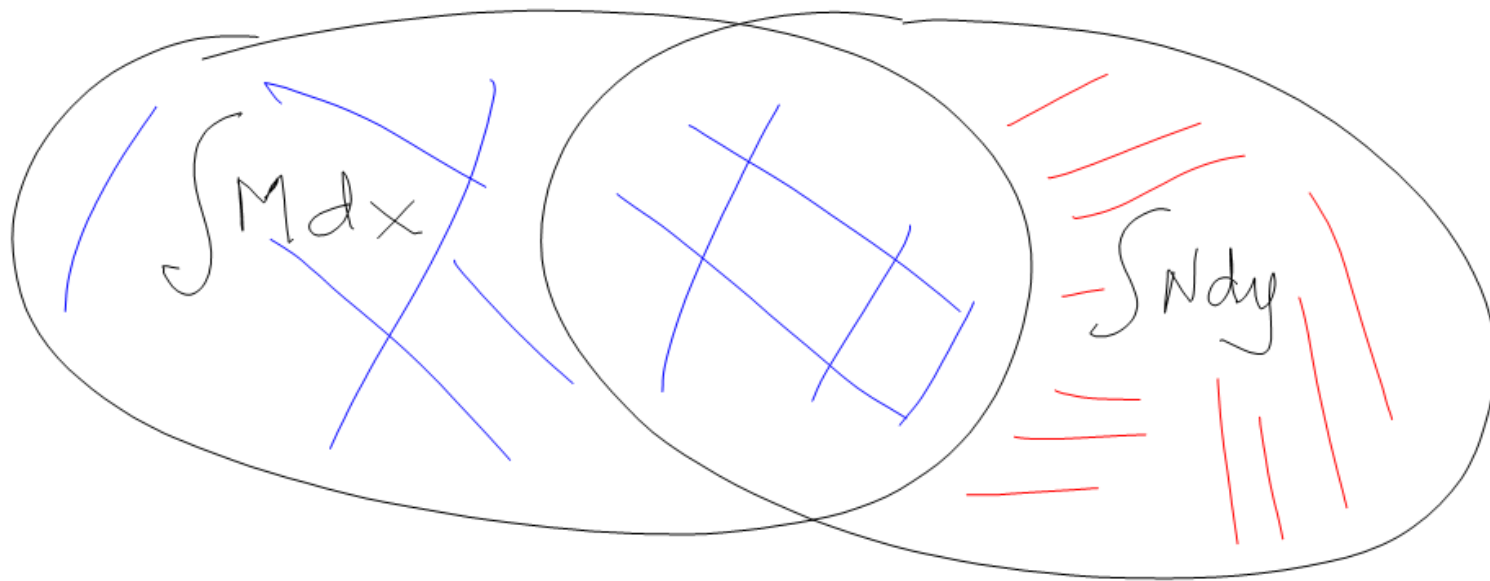
$$\rightarrow (2xy^3 - 6y^4 + 12x^2y) + (3x^2y^2 - 24xy^3 + 4x^3 + 4y) \frac{dy}{dx} = 0$$

$$\frac{\partial^2 F}{\partial x \partial y} = \frac{\partial^2 F}{\partial y \partial x}$$

$$\frac{\partial M}{\partial y} = 6xy^2 - 24y^3 + 12x^2$$

$$\frac{\partial N}{\partial x} = 6xy^2 - 24y^3 + 12x^2$$

EDO(1) NL es EXACTA.



$$\text{Sol gen} = \left[\int M dx \right] \cup \left[\int N dy \right] = C$$

$$SG \Rightarrow \int M dx + \int \left(N - \frac{\partial}{\partial y} \int M dx \right) dy = C,$$

$$\int N dy + \int \left(M - \frac{\partial}{\partial x} \left(\int N dy \right) \right) dx = C,$$

TAREA CERO: ¿Calcular cuál flecha de las diez es la más eficiente con el mismo arco rojo de la primera clase?

TABLA DE FLECHAS

| | m | Kg |
|-----|------|-------|
| # 1 | 0.61 | 0.016 |
| # 2 | 0.77 | 0.030 |
| # 3 | 0.66 | 0.021 |
| # 4 | 0.66 | 0.030 |
| # 5 | 0.70 | 0.029 |
| # 6 | 0.71 | 0.020 |
| # 7 | 0.72 | 0.024 |
| # 8 | 0.80 | 0.031 |
| # 9 | 0.76 | 0.032 |
| #10 | 0.73 | 0.030 |