

ZADANIE 13.

$$\frac{dx}{dt} = (y-x)(y-1)$$

$$\frac{dy}{dt} = (x-y)(x-1)$$

$$\frac{dy}{dx} = \frac{(x-y)(x-1)}{(y-x)(y-1)}$$

$$\frac{dy}{dx} = \frac{-(y-x)(x-1)}{(y-x)(y-1)}$$

$$\frac{dy}{dx} = \frac{-(x-1)}{(y-1)} \quad | \cdot dx$$

$$dy = \frac{-(x-1)}{(y-1)} dx \quad | \cdot (y-1)$$

$$(y-1)dy = -(x-1)dx \quad | \int$$

$$\int (y-1)dy = - \int (x-1)dx$$

$$\frac{y^2}{2} - y = -(\frac{x^2}{2} - x) + C \quad | \cdot 2$$

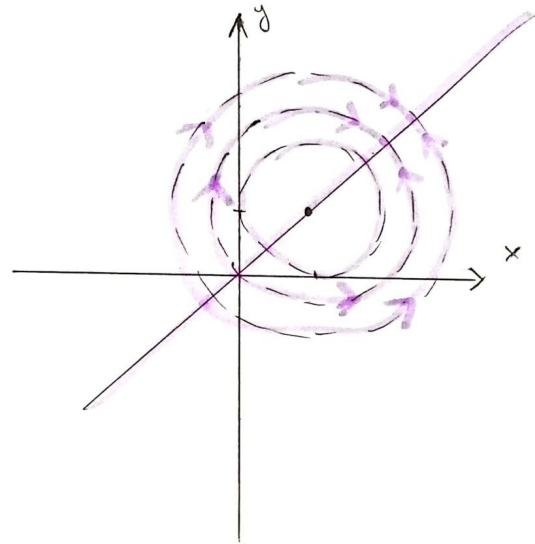
$$y^2 - 2y = -(x^2 - 2x) + C_1 \quad C_1 = 2 \cdot C$$

$$y^2 - 2y + 1 - 1 = -(x^2 - 2x + 1 - 1) + C_1$$

$$(y-1)^2 - 1 = -(x-1)^2 + 1 + C_1$$

$$(y-1)^2 + (x-1)^2 = C_2$$

$$C_2 = C_1 + 2$$



ZADANIE 11.

$$\frac{dx}{dt} = 2y$$

$$\frac{dy}{dt} = -2x$$

$$\frac{dy}{dx} = \frac{2x}{-2y}$$

$$\frac{dy}{dx} = -\frac{x}{y} \quad | \cdot dx$$

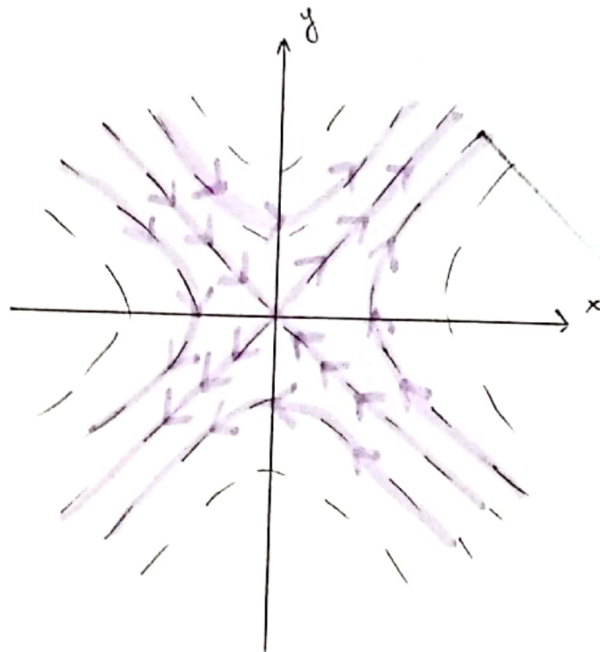
$$y dy = -x dx \quad | \int$$

$$\int y dy = \int -x dx$$

$$\frac{y^2}{2} = -\frac{x^2}{2} + C$$

$$\frac{y^2}{2} = -\frac{x^2}{2} + C \quad | \cdot 2$$

$$\underline{\underline{y^2 - x^2 = C_1}} \quad C_1 = 2 \cdot C$$



ZADANIE 12.

$$\frac{dx}{dt} = -8y$$

$$\frac{dy}{dt} = 18x$$

$$\frac{dy}{dx} = \frac{18x}{-8y}$$

$$\frac{dy}{dx} = \frac{9x}{-4y} \quad | \cdot dx$$

$$dy = \frac{9x}{-4y} dx \quad | \cdot (-4y)$$

$$-4y dy = 9x dx \quad | \int$$

$$-4 \int y dy = 9 \int x dx$$

$$-4 \cdot \frac{y^2}{2} = 9 \cdot \frac{x^2}{2} + C \quad | \cdot 2$$

$$-4y^2 = 9x^2 + C_1 \quad C_1 = 2 \cdot C$$

$$\underline{\underline{-4y^2 - 9x^2 = C_1}}$$

