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EDO Capítulo 5

Exemplo 5.1)  $\frac{dy}{dx} = \frac{x^2}{1-y^2}$

$$\int (1-y^2) dy = \int x^2 dx$$

$$y - \frac{y^3}{3} = \frac{x^3}{3} + C //$$

Exemplo 5.2)  $M(x) + N(y) \frac{dy}{dx} = 0$

$$N(y) dy = -M(x) \rightarrow \int N(y) dy = -\int M(x) dx + C //$$

Exemplo 5.3)  $\begin{cases} \frac{dy}{dx} = \frac{3x^2 + 4x + 2}{2(y-1)} \\ y(0) = -1 \end{cases}$

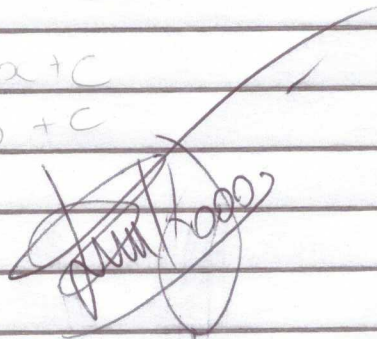
$$\int 2(y-1) dy = \int 3x^2 + 4x + 2 dx$$

$$\frac{2y^2}{2} - 2y = x^3 + 2x^2 + 2x + C$$

$$y^2 - 2y = x^3 + 2x^2 + 2x + C$$

$$1 + 2 = 0 + 0 + 0 + C$$

$$C = 3 //$$



$$\frac{dy}{dx} = g\left(\frac{y}{x}\right)$$

Example 5.4)  $y(x) = Y(x)$   
(x)

$$y = x \cdot v(x)$$

$$\frac{dy}{dx} = v(x) + x v'(x)$$

$$v(x) + x \frac{dv}{dx} = g(v)$$

$$x \frac{dv}{dx} = g(v) - v = \frac{1}{g(v) - v} \cdot v'(x) = \frac{1}{x}$$

~~StuKop~~