

## LISTA DE EXERCÍCIOS (DERIVADAS IMPLÍCITAS)

Dada as equações, determinar  $\frac{dy}{dx}$ , a derivada de  $y$  em relação a  $x$ .

$$a) x^3 + y^3 = 8$$

$$f) xy^2 + 2y^3 = x - 2y$$

$$b) 4x^2 - 9y^2 = 17$$

$$g) x^2 y^2 + x \operatorname{sen} y = 0$$

$$c) \cos(x + y) + \operatorname{sen}(x + y) = \frac{1}{3}$$

$$h) e^{x^2} + \ln y = 0$$

$$d) \operatorname{tg}(x + y) = 4$$

$$i) \frac{2x + 3y}{x^2 + y^2} = 9$$

$$e) e^{\cos x} + e^{\operatorname{sen} y} = \frac{1}{4}$$

$$j) \operatorname{sen} \frac{x}{y} = \frac{1}{2}$$

### Respostas:

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

$$f) \frac{dy}{dx} = \frac{1 - y^2}{2xy + 6y^2 + 2}$$

$$b) \frac{dy}{dx} = \frac{4x}{9y}$$

$$g) \frac{dy}{dx} = \frac{-2xy^2 - \operatorname{sen} y}{2x^2 y + x \cos y}$$

$$c) \frac{dy}{dx} = -1$$

$$h) \frac{dy}{dx} = -2xe^{x^2} \cdot y$$

$$d) \frac{dy}{dx} = -1$$

$$i) \frac{dy}{dx} = \frac{5 - 18x}{18y}$$

$$e) \frac{dy}{dx} = \frac{\operatorname{sen} x \cdot e^{\cos x}}{\cos y \cdot e^{\operatorname{sen} y}}$$

$$j) \frac{dy}{dx} = \frac{y}{x}$$