



$$\rightarrow f(x, y) = (x - y) e^{-x^2 - y^2}$$

$$\text{Dom } \{(x, y) \in \mathbb{R}^2\}$$

Puntos Críticos

$$1) \frac{\partial f}{\partial x} = e^{-x^2 - y^2} + (x - y)(-2x) e^{-x^2 - y^2}$$

$$\frac{\partial f}{\partial x} = e^{-x^2 - y^2} (1 + (x - y)(-2x))$$

$$2) \frac{\partial f}{\partial y} = -e^{-x^2 - y^2} + (x - y)(-2y) e^{-x^2 - y^2}$$

$$\frac{\partial f}{\partial y} = e^{-x^2 - y^2} (-1 + (x - y)(-2y))$$

$$\rightarrow \frac{\partial f}{\partial x} = e^{-x^2 - y^2} (1 + [-2x^2 + 2xy])$$

$$\bullet \frac{\partial f}{\partial x} = e^{-x^2 - y^2} (-2x^2 + 2xy + 1)$$

$$\bullet \frac{\partial f}{\partial y} = e^{-x^2 - y^2} (-1 + [-2xy + 2y^2])$$

$$1) \frac{\delta f}{\delta x} = 0$$

$$e^{x^2-y^2}(-2x^2+2xy+1) = 0 \quad (i)$$

$$2) \frac{\delta f}{\delta y} = 0$$

$$e^{x^2-y^2}(-1-2xy+2y^2) = 0 \quad (ii)$$

$$i) -2x^2+2xy+1 = 0$$

$$ii) -1-2xy+2y^2 = 0$$

$$i) 2x^2-2xy-1 = 0$$

$$ii) 2y^2-2xy-1 = 0$$

$$(x+y)(x-y) = 0$$

$$x = y \rightarrow \text{No sample}$$

$$x = -y$$

$$ii) 2y^2+2y^2-1 = 0$$

$$4y^2-1 = 0$$

$$(2y + 1)(2y - 1) = 0$$

$$y = -1/2 \quad \vee \quad x = 1/2$$

$$y = 1/2 \quad \vee \quad x = -1/2$$

$$P.C = (1/2, -1/2) \quad (-1/2, 1/2)$$

Máximo

Mínimo













