Multiplicadore de Lagrange

Sea $D \subset \mathbb{R}^2, f : D \to \mathbb{R}, f \in C^1, g : D \to \mathbb{R}, g \in C^1, k \in \mathbb{R}$

$C = \{(x,y) \in D : g(x,y) = k\}, q_0 = (x_0.y_0) \in C$ min o max local de f en C

$\boldsymbol{\nabla} g(q_0) \neq (0,0) \Rightarrow$

$\exists \lambda \in \mathbb{R} : \boldsymbol{\nabla} f(q_0) = \lambda \cdot \boldsymbol{\nabla} g(q_0)$

$\text{máx}(f) = 1$ en $(0,1)$

$\text{mín}(f) = 0$ en $(0,-1)$