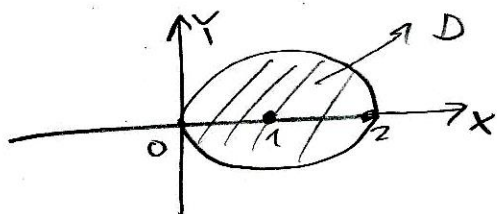


$$f. \left\{ \begin{array}{l} f(x,y) = x^3 - 3x + y^2 \\ D = \{ (x,y) \in \mathbb{R}^2 : x^2 - 2x + y^2 \leq 0 \} \end{array} \right.$$

$$x^2 - 2x + y^2 = 0$$

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

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



Pontos no interior da região D :

$$\left\{ \begin{array}{l} f_x = 3x^2 - 3 \\ f_y = 2y \end{array} \right.$$

$$f_x = 0 : 3x^2 - 3 = 0, \quad x = \pm 1$$

$$f_y = 0 : 2y = 0, \quad y = 0$$

$$(1, 0) \notin D$$

$$\underline{(1, 0)} \in D \quad \underline{\underline{0.1}}$$

Pontos na borda

$$x^2 - 2x + y^2 = 0 \Rightarrow y^2 = 2x - x^2$$

$$\begin{aligned} h(x) = f(x,y) \Big|_{y^2 = 2x - x^2} &= x^3 - 3x + 2x - x^2 \\ &= x^3 - x^2 - x, \quad 0 \leq x \leq 2 \end{aligned}$$