

$$f(x, y) = x^2 + y^2$$

$$f(x, y) = \sin x + \cos y$$

1a)  $\sqrt{x+y} = f(x, y)$

$$x+y \geq 0$$

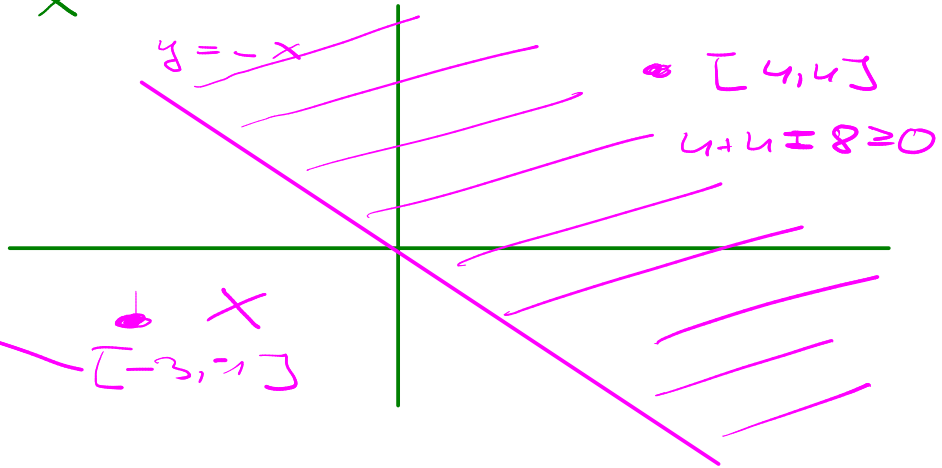
$$D_f = \{ [x, y] \in \mathbb{R}^2 : x+y \geq 0 \}$$

$$x+y = 0$$

$$y = -x$$

$$-3 - 1 = -4 \not\geq 0$$

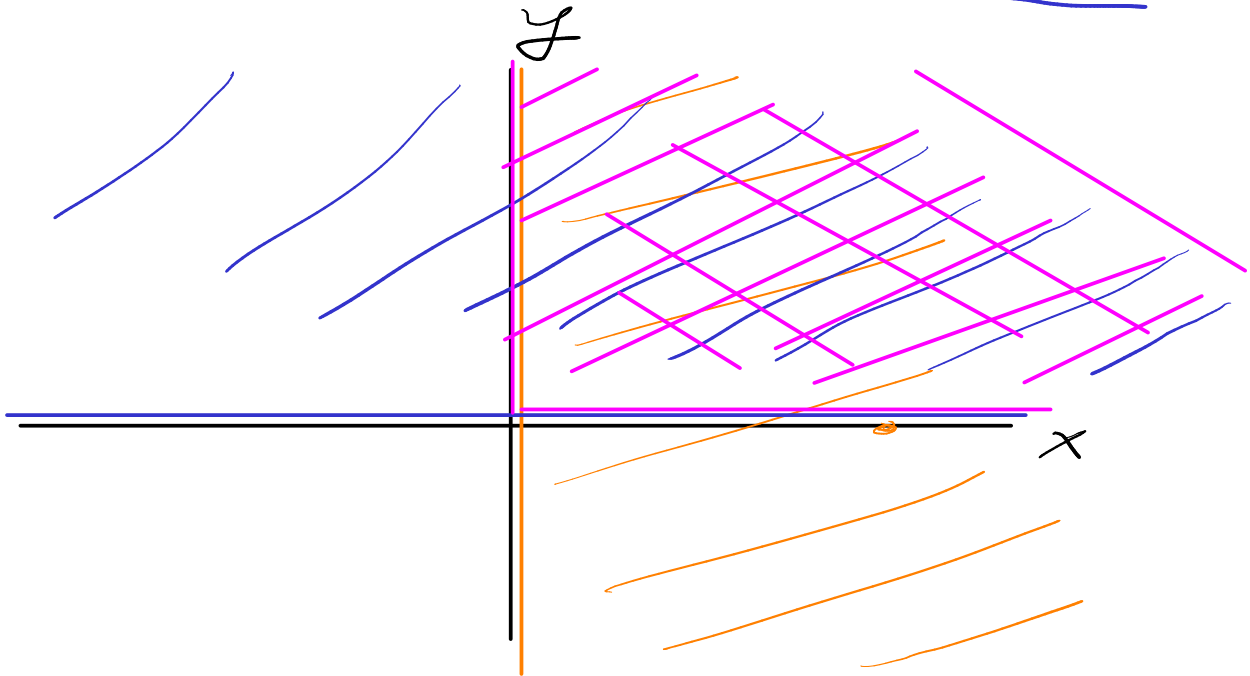
$$[-3, -1]$$



$$f(x, y) = \sqrt{x} + \sqrt{y}$$

$$x \geq 0 \text{ and } y \geq 0 \text{ and}$$

$$D_f = \{ [x, y] \in \mathbb{R}^2 : x \geq 0, y \geq 0 \}$$



$$\frac{1}{x^2 - y^2 + 1} + \ln(e - y - x^2)$$

$$x^2 - y^2 + 1 \neq 0$$

$$x^2 + 1 \neq y^2$$

$$-x^2 + y^2 \neq 1$$

$$e - y - x^2 > 0$$

$$e + x^2 > y$$

