#B231/MA2/SEM

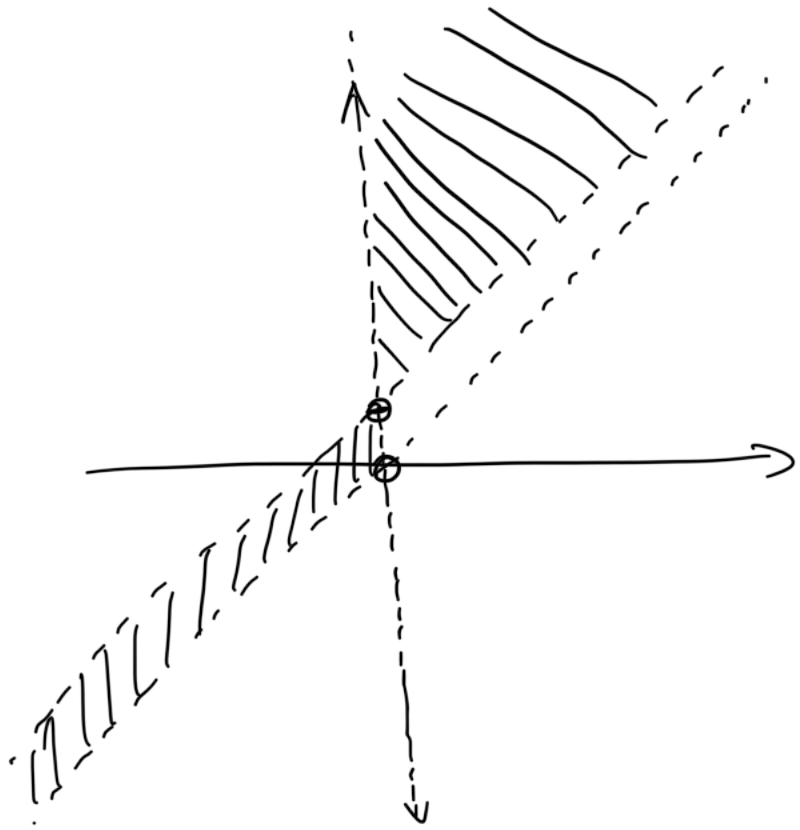
Načrtněte definiční obor funkce $f(x,y) = \ln(x \cdot \ln(y-x))$

$D(f)$: $y - x > 0 \Rightarrow (y-x>0) \wedge ((x<0 \wedge y-x<1) \vee (x>0 \wedge y-x>1))$

$\wedge\ x \cdot \ln(y-x) > 0$

$\Leftrightarrow$

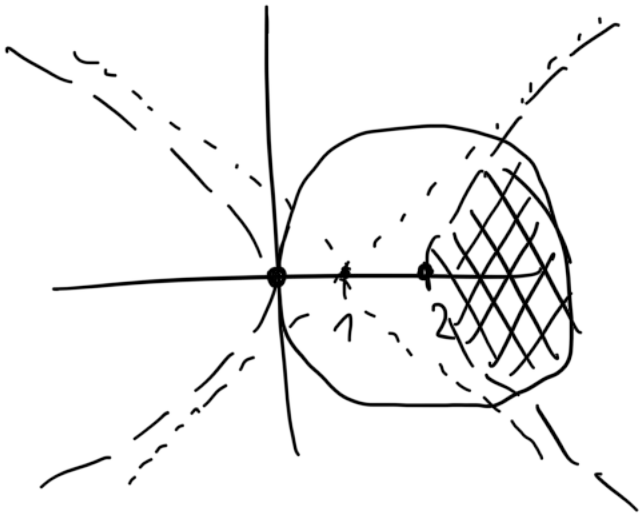
$(y>x \wedge x<0 \wedge y<1+x) \vee (y>x \wedge x>0 \wedge y>1+x)$



Načrtněte množinu $M = \{(x,y) \in \mathbb{R}^2 \mid x^2 - 2x - y^2 > 0 \wedge x^2 - 4x + y^2 \leq 0\}$

$(x-1)^2 - 1 - y^2 > 0$ $\quad (x-2)^2 - 4 + y^2 \leq 0$

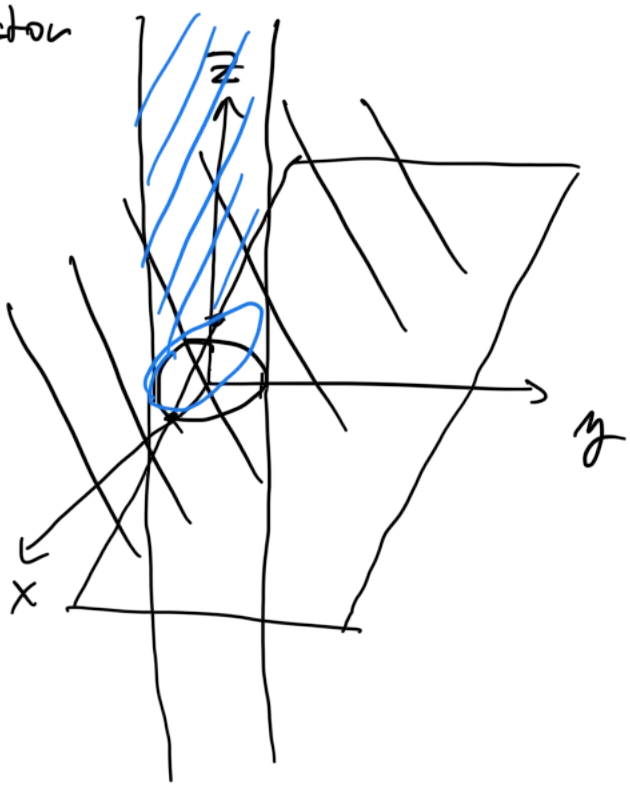
$(x-1)^2 - y^2 > 1$ $\quad (x-2)^2 + y^2 \leq 4$



Načrtněte množinu v $\mathbb{R}^3$

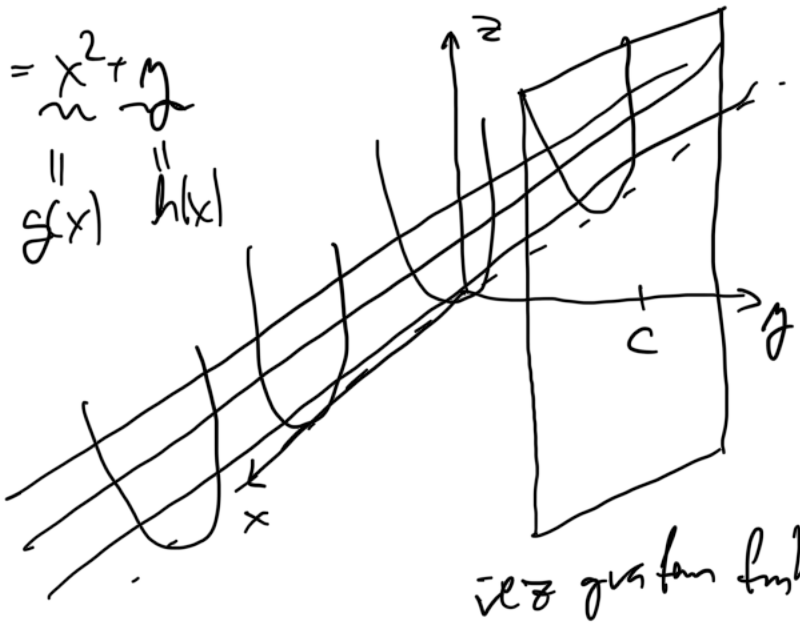
$$M: \underbrace{x^2+y^2}_{\text{válec (nekonečný)}} \le 1 \ \wedge \ \overbrace{x+z \ge 1}^{\text{poloprostor}}$$

$$\underbrace{x+z=1}_{\text{rovina}}$$




Načrtněte graf funkce:

$$f(x,y) = \underbrace{x^2}_{g(x)} + \underbrace{y}_{h(x)}$$




„okap"

řez grafem funkce f pro $y=1 (=c)$

$$z = f(x,1) = x^2+1$$

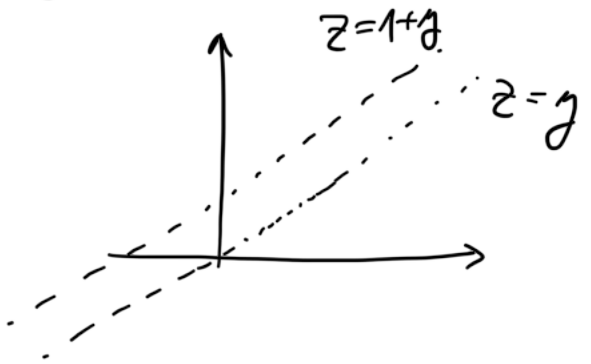
pro $y=0$ $\quad z = f(x,0) = x^2$

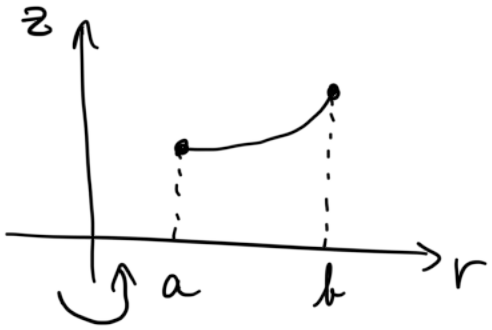
řez grafem fce $f$ pro $x=0$

$f(0,y) = 0+y = y$

pro $x=1$

$f(1,y) = 1^2+y = 1+y$

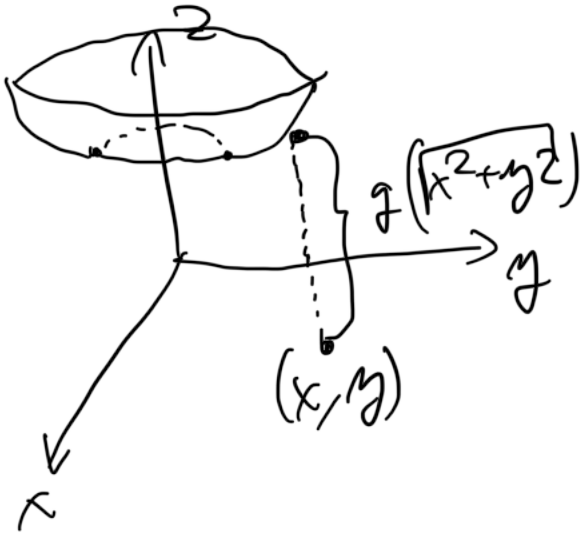



graf fce $g: \langle a, b) \to \mathbb{R}$

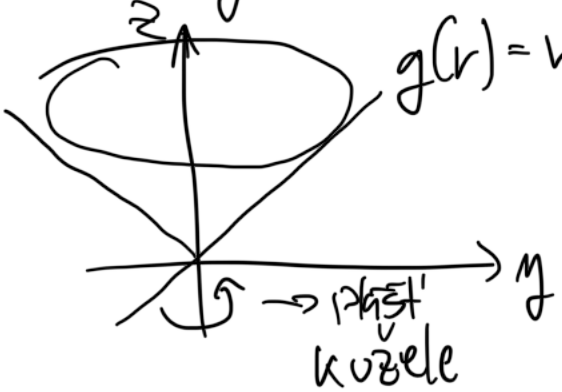
$\cap$

$\langle 0, +\infty)$




plocha vzniklá rotací grafu fce $g$ je grafem $f(x,y) = g(\sqrt{x^2+y^2})$

Načrtněte graf funkce

$f(x,y) = \sqrt{x^2+y^2}$

$g(r) = r, \; r \geq 0$