$$f(x)=\frac{2x^2}{x+|x|} \qquad D_f \qquad (0,\infty)$$

$x>0 \quad x+|x|=2x>0$

$x<0 \quad x+|x|=x+(-x)=0$

$x=0 \quad x+|x|=0$

$$f(x)=\sqrt{\frac{9-x^2}{|9-x^2|}} \qquad D_f=(-3,3)$$

$|9-x^2|\neq 0$

$9-x^2\neq 0$

$9\neq x^2$

$x\neq \pm 3$

$x\in(-3,3)$

$\frac{9-x^2}{|9-x^2|}\geq 0$

$9-x^2\geq 0$

$x^2\leq 9$

$x\in\langle -3,3\rangle$

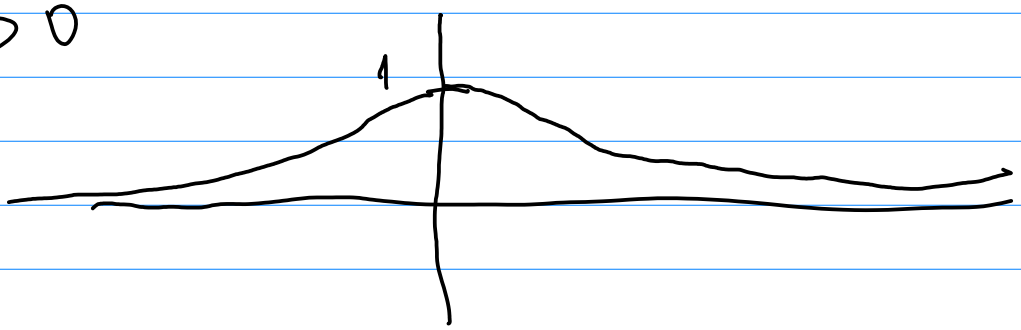
$$f(x)=\frac{2}{x^2+2} \qquad D_f, H_f, \text{graf}$$

$D_f=R$

$H_f=(0,1\rangle$

$x=0 \quad f(x)=1$

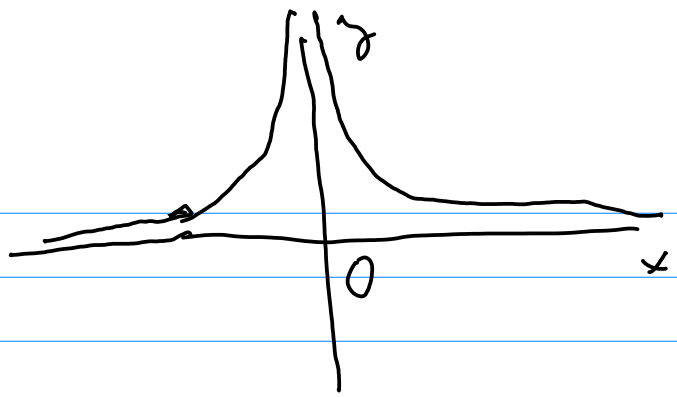
$f(x)>0$



$$f(x)=\frac{3}{x} \qquad D_f, H_f, \text{graf}$$

$D_f=R\setminus\{0\}$

$H_f=(0,\infty)$



$f(x) = \ln(x^2 - 3)$ $\quad$ D_f, H_f, graf

$x^2 - 3 > 0$

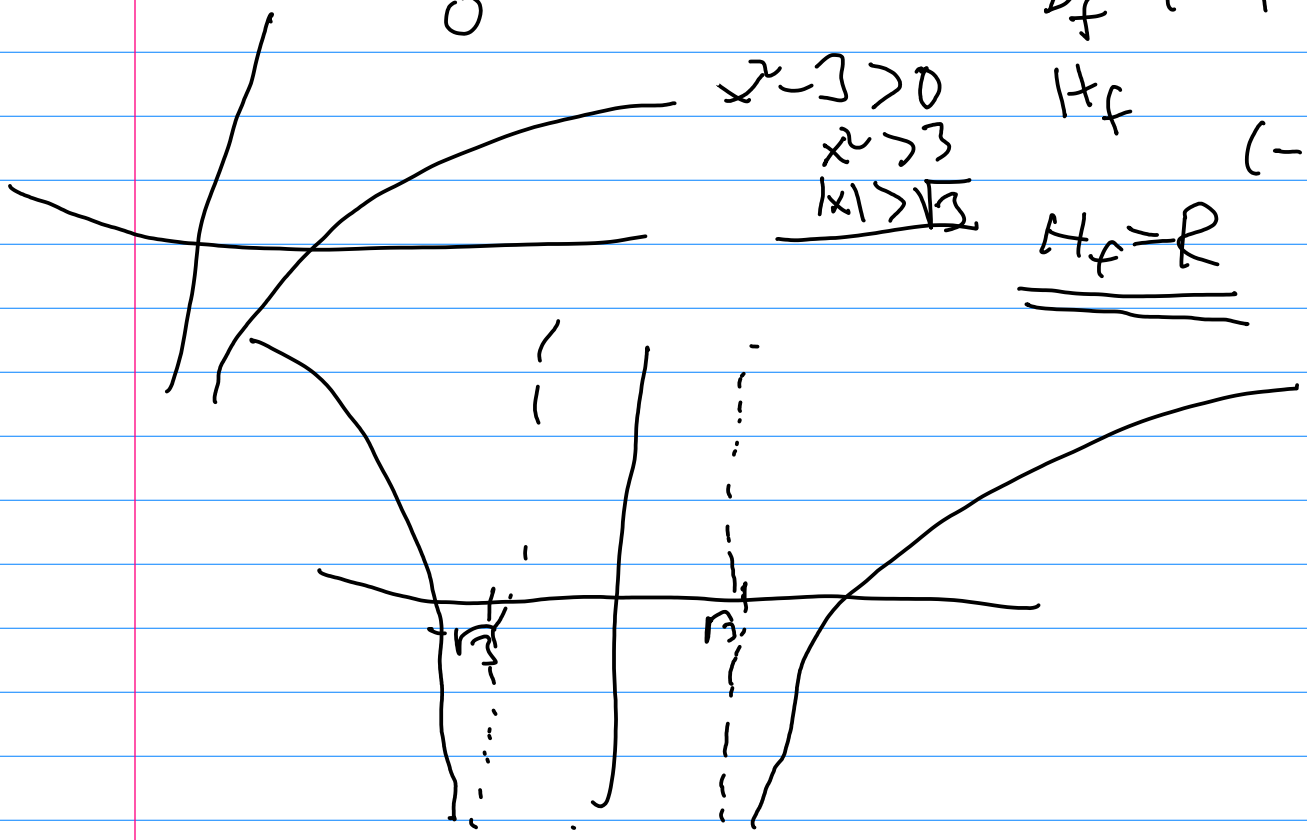
$x^2 > 3$

$|x| > \sqrt{3}$

$D_f = (-\infty, -\sqrt{3}) \cup (\sqrt{3}, \infty)$

H_f $\quad$ $(0, \infty)$ $\quad$ $(-\infty, 0)$

$H_f = \mathbb{R}$



---

f $\quad$ D_f $\quad$ symetrické $\quad$ $x \in D_f \Rightarrow -x \in D_f$

f sudá $\quad$ $\forall x \in D_f : f(x) = f(-x)$

f lichá $\quad$ $\forall x \in D_f : f(-x) = -f(x)$

$f(x) = \sqrt{x^2 + x^4}$ $\quad$ $f(-x) = \sqrt{(-x)^2 + (-x)^4} = \sqrt{x^2 + x^4} = f(x)$

$D_f = \mathbb{R}$

$f(x) = \frac{1}{x^5 + x}$ N

$f(-x) = \frac{1}{(-x)^5 + (-x)} = \frac{1}{-x^5 - x} = -\frac{1}{x^5 + x} = -f(x)$

$D_f = \mathbb{R} \setminus \{0\}$ $x \in D_f \Rightarrow -x \in D_f$

$f(x) = \cos(x^2 - 1)$ $D_f = \mathbb{R}$

$f(-x) = \cos((-x)^2 - 1) = \cos(x^2 - 1) = f(x)$

$f(x) = x^2 + x^3$ $f(1) = 2$ N

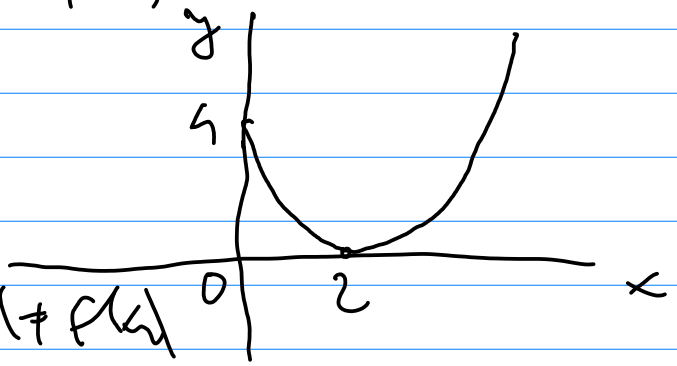
$f(-1) = 0$ $f(-1) = f(1)$

$f(-1) = -f(1)$

$f: \langle 0, \infty) \to \langle 0, \infty)$ $f(x) = (x-2)^2$

$f(0) = 4$

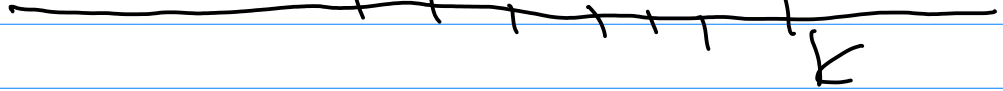
$f(4) = 4$



$\forall x_1, x_2 \in D_f : x_1 \neq x_2 \Rightarrow f(x_1) \neq f(x_2)$

$\mathbb{Z}$ nie

$\exists K \in \mathbb{R} \, \forall x \in \mathbb{Z} : x \leq K$



$\exists k \in \mathbb{R} \, \forall x \in \mathbb{Z} : k \leq x$

$A = (-\infty, 5\rangle$ $\forall x \in (-\infty, 5\rangle : x \leq 5$

$\max = 5$

$5 \in A \;,\; \forall x \in (-\infty, 5\rangle : x \leq 5$

$\langle 3, 5)$ $\qquad$ $\min 3$ $\qquad$ $\max \nexists$

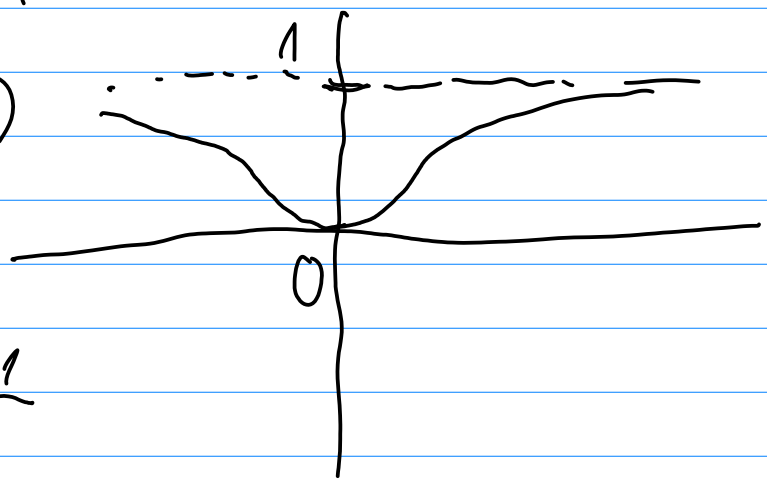
$f(x) = \frac{x^2}{1+x^2}$ $\qquad$ $f(x) \geq 0$

$f(x) \leq 1$ $\qquad$ $f(x) < 1$

$\frac{x^2}{1+x^2} < \frac{x^2+1}{1+x^2} = 1$

$\min f = 0 = f(0)$

$\max f = \nexists$



$1 - \frac{1}{x^2+1} = \frac{x^2+1-1}{x^2+1}$