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

$D_f = (-\infty, \infty) = R$

$f(x) > 0$ $\qquad$ $x^2+2 > 0$ $\qquad$ $H_f = (0, 1\rangle$

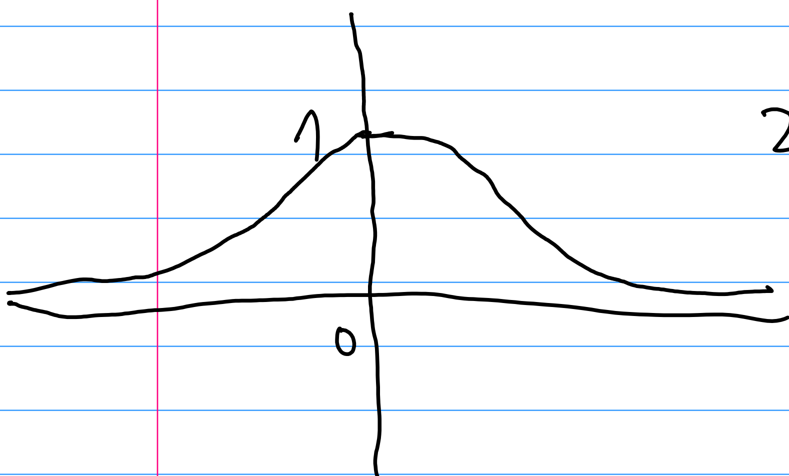
$f(x) = \frac{2}{x^2+2} \le \frac{2}{2} = 1$

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

$2 < \varepsilon(x^2+2) = 2\varepsilon + \varepsilon x^2$

$2(1-\varepsilon) < \varepsilon x^2$

$\frac{2(1-\varepsilon)}{\varepsilon} < x^2$



$f(x) = \frac{3}{x^4}$ $\qquad$ $D_f, H_f,$ graf

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

$H_f = (0, \infty)$

$\cancel{H_f = (0, 3\rangle}$

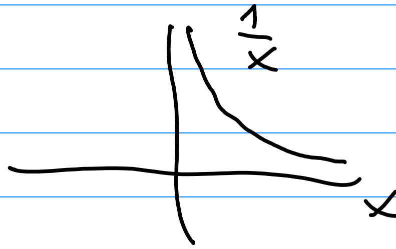
$\boxed{H_f = (0, \infty)}$

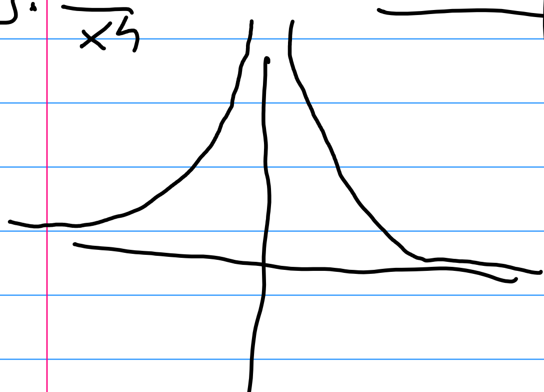
$x^4 \in (0, \infty)$

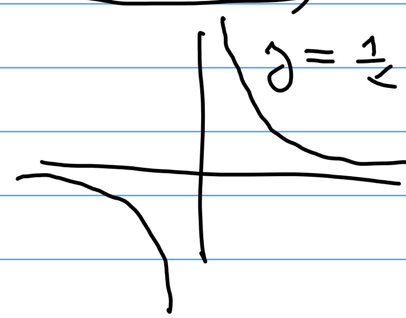
$\frac{1}{x^4} \in (0, \infty)$

$\frac{3}{x^4} \in (0, \infty)$

$\frac{3}{x^4} = 3 \cdot \frac{1}{x^4}$







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

$x^2 - 3 > 0$

$x^2 > 3$ $\qquad D_f = (-\infty, -\sqrt{3}) \cup (\sqrt{3}, \infty)$

$|x| > \sqrt{3}$

$H_f = R = (-\infty, \infty)$

$x^2 - 3 \in (0, \infty)$

R^+

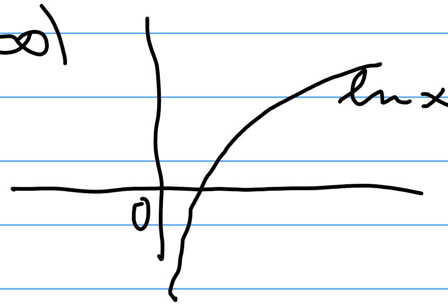
$(3, \infty)$

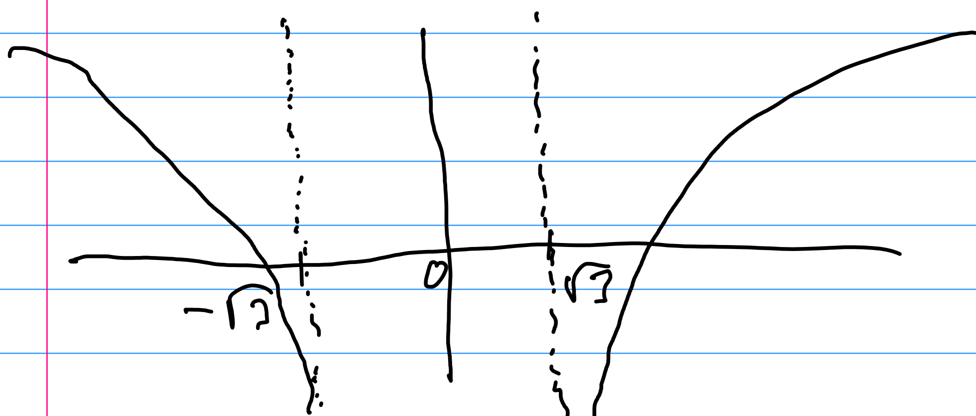
$(\sqrt{3}, \infty)$

$(-3, \infty)$

$(0, \infty)$

$(-\infty, \infty) = R$





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symetrická množina A $\qquad x \in A \Rightarrow -x \in A$

D_f je symetrická množina

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

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

$f(x) = \sqrt{x^2 + x^4}$ $\qquad$ P

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

$D_f = R$

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

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

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

symetrická

$$f(x) = \cos(x^3+x^5)$$ N P

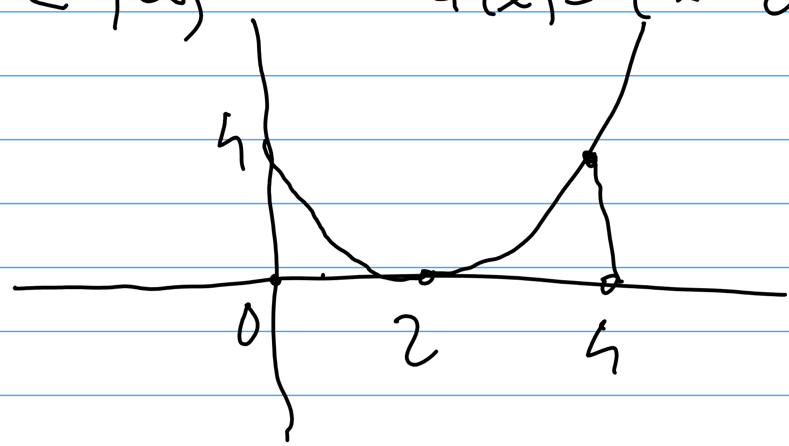
$$f(-x) = \cos\left((-x)^3+(-x)^5\right) = \cos(-x^3-x^5) =$$
$$= \cos\left(-(x^3+x^5)\right) = \cos(x^3+x^5) = f(x)$$

$D_f = \mathbb{R}$

$f(x) = x^2+x^3$ $\quad f(1) = 2$

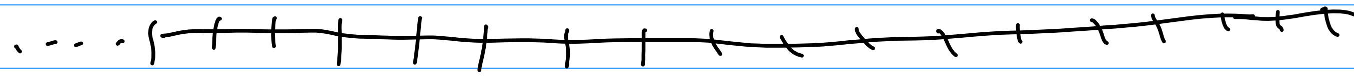
$f(-x) = x^2-x^3$ $\quad f(-1) = 0$

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



Z A oh. zh. $\exists K>0\ \forall x\in A: x\le K$

oh. zd. $\exists k>0\ \forall x\in A: x\ge k$



$A=(-\infty,5\rangle$ $\max A=5$

$5\in A$ 5 je horné ohraničenie

$\forall x\in A: x\le 5$

$A=\langle 3,5)$ 6 N

$\forall x\in A: x\le 6$

$\forall x\in A: x\le 5$

$\min A=3$ $\max A=\nexists$

$\max M$ $M\in A$ $A\le M$

$f(x)=\dfrac{x^2}{1+x^2}$ $\forall x\in D_f: f(x)\le 1$

$f(x)=\dfrac{x^2}{1+x^2}\le\dfrac{x^2+1}{1+x^2}=1$

$f(x)\ge 0$ $x^2\ge 0$ $1+x^2>0$

H_f

$f(0)=\dfrac{0^2}{1+0^2}=0$ $\min f=0$

$H_f=\langle 0,1)$