$\vec{x}_1, \vec{x}_2, \vec{x}_3, \dots, \vec{x}_n$ LN

$c_1, c_2, \dots, c_n \in R$

$c_1\vec{x}_1 + c_2\vec{x}_2 + c_3\vec{x}_3 + \dots + c_n\vec{x}_n$

$\vec{x}_1 = (1,2)$ $\vec{x}_2 = (1,3)$ $x_3 = (2,3)$ ·—

$c_1\vec{x}_1 + c_2\vec{x}_2 + \dots + c_n\vec{x}_n = \vec{0} \implies c_1 = c_2 = c_3 = \dots = c_n = 0$

LN

LZ $\exists c_1, c_2, \dots, c_n \in \mathbb{R} : \exists i \in \{1, 2, \dots, n\} : c_i \neq 0$

$c_1\vec{x}_1 + c_2\vec{x}_2 + \dots + c_n\vec{x}_n = 0$

$(2,1,3)$ $(2,1,-3)$ LN

$2(2,1,3) = (4,2,6)$ $2(2,1,-3) = (4,2,-6)$

$(4,2,6) + (4,2,-6) = (8,4,0) \neq \vec{0}$

$\vec{0} = (0,0,0)$

$c_1(2,1,3) + c_2(2,1,-3) = (0,0,0)$ LN

$(2c_1 + 2c_2, c_1 + c_2, 3c_1 - 3c_2) = (0,0,0)$

$3c_1 - 3c_2 = 0$

$3c_1 = 3c_2$

$\underline{c_1 = c_2}$

$c_1 + c_2 = 0$

$c_1 + c_1 = 0$

$2c_1 = 0$

$c_1 = 0$

$c_2 = 0$

$(1,2,3), (1,2,4), (2,4,7)$

$$(2,4,7) = (1,2,3) + (1,2,4)$$

$$(1,2,3) + (1,2,4) - (2,4,7) = (0,0,0)$$

LZ $1 \cdot (1,2,3) + 1 \cdot (1,2,4) + (-1)(2,4,7) = (0,0,0)$

$(1,0)$ $(0,1)$ $(-5,3)$

$(-5,3) = c_1(1,0) + c_2(0,1) =$ $c_1 = -5,\ c_2 = 3$

$= (c_1, 0) + (0, c_2) = (c_1, c_2)$

$(1,2), (2,1)$ $(-4,1)$

$\underline{(-4,1)} = c_1(1,2) + c_2(2,1)$ $c_1 = -2$ $c_2 = -1$

$c_1(1,2) + c_2(2,1) = (c_1, 2c_1) + (2c_2, c_2) =$

$= \underline{(c_1 + 2c_2, 2c_1 + c_2)}$

$$\left.\begin{aligned} c_1 + 2c_2 &= -4 \\ 2c_1 + c_2 &= 1 \end{aligned}\right\} \Rightarrow c_1 = 2,\ c_2 = -3$$

$f(x) = x^3 - 3x + 1$ $D_f = D(f)$

$D_f = R$

$f(x) = \dfrac{3x}{x^2 - 4}$ $\underline{D_f = R \setminus \{-2, 2\}}$

$x^2 - 4 \neq 0$ $x^2 - 4 = 0$

$(x-2)(x+2) = 0$

$x = \pm 2$

$f(x) = \dfrac{1}{x\sqrt{2x+1}}$ $D_f = (-\frac{1}{2}; 0) \cup (0, \infty)$

$x \neq 0 \qquad \sqrt{2x+1} \text{ def} \Rightarrow 2x+1 \geq 0 \Rightarrow x \geq -\frac{1}{2}$

$\sqrt{2x+1} \neq 0 \qquad 2x+1 \neq 0 \qquad x \neq -\frac{1}{2}$

$(-\frac{1}{2}, \infty) \setminus \{0\} = (-\frac{1}{2}, 0) \cup (0, \infty)$

$f(x) = \frac{2x+2}{\sqrt{(x-4)(x+4)}} \qquad D_f = (4, \infty)$

$\mathbb{R} \setminus \langle -4, 4 \rangle$

$(x-4)(x+4) > 0 \qquad + \quad -4 \quad - \quad 4 \quad +$

$D_f = (-\infty, -4) \cup (4, \infty) = \mathbb{R} \setminus \langle -4, 4 \rangle$

$f(x) = \sqrt{x - \sqrt{x+2}} \qquad D_f = \langle 2, \infty)$

$\sqrt{x+2} \qquad x+2 \geq 0 \qquad x \geq -2, \; x \geq 0$

$\sqrt{x - \sqrt{x+2}} \qquad x - \sqrt{x+2} \geq 0 \qquad x \geq 0$

$x \geq \sqrt{x+2} \geq 0$

$x \geq \sqrt{x+2}$

$x^2 \geq x+2$

$x^2 - x - 2 \geq 0$

$(x-2)(x+1) \geq 0 \qquad x \leq -1 \vee x \geq 2$

$+ \quad -1 \quad - \quad 2 \quad +$

$x \geq 2 \qquad D_f = \langle 2, \infty)$

$f(x) = \sqrt{4 - x^2} \qquad D_f, H_f$ graf

$D_f = \langle -2, 2 \rangle \qquad H_f = \langle 0, 2 \rangle$

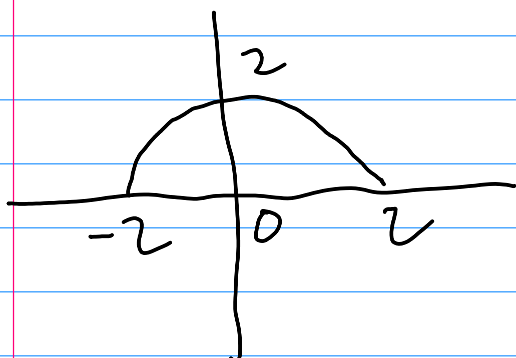
D_f $\quad 4-x^2\geq 0 \quad 4\geq x^2 \quad |x|\leq 2 \quad x\in\langle -2,2\rangle$

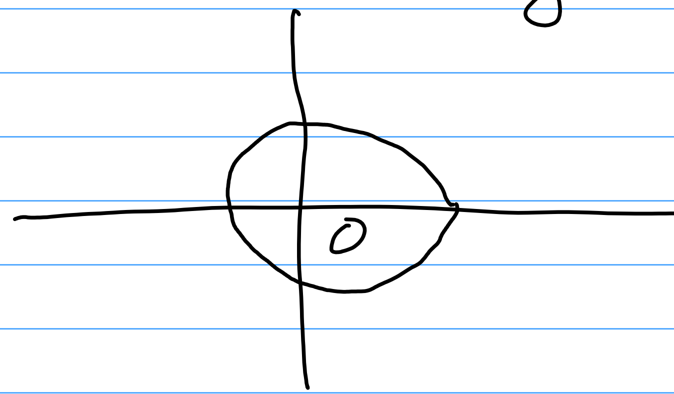
H $\quad x=0 \quad f(x)=2$ ... max $\quad H_f=\langle 0,2\rangle$

$f(2)=0$ ... min

$y=\sqrt{4-x^2} \quad y^2=4-x^2 \quad x^2+y^2=4=2^2$

$y\geq 0$





$f:\langle 0,\infty\rangle\to\langle -4,\infty\rangle \qquad f(x)=-4+2\sqrt{x}$

bijekcija $\Leftrightarrow$ injekcija $\wedge$ surjekcija

injekcija $\qquad x_1\neq x_2\Rightarrow f(x_1)\neq f(x_2)$

$f(x_1)=f(x_2)\Rightarrow x_1=x_2$

$p\Rightarrow q \sim \bar{q}\Rightarrow \bar{p}$

$\underline{f(x_1)=f(x_2)}\Rightarrow -4+2\sqrt{x_1}=-4+2\sqrt{x_2}\Rightarrow 2\sqrt{x_1}=2\sqrt{x_2}\Rightarrow$

$\Rightarrow \sqrt{x_1}=\sqrt{x_2}\Rightarrow \underline{x_1=x_2}$

surjekcija $\quad f:A\to B$

$\forall y\in B\ \exists x\in A:\ f(x)=y$

$y=-4+2\sqrt{x} \qquad \langle -4,\infty\rangle$

$y+4=2\sqrt{x} \qquad \langle 0,\infty\rangle$

$\frac{1}{2}(y+4) = \sqrt{x}$ $\langle 0,\infty)$

$\frac{1}{2}(y+4)^2 = x$

$x = \frac{1}{2}(y+4)^2$ $\langle 0,\infty)$

$f^{-1}(x) = \frac{1}{2}(x+4)^2$