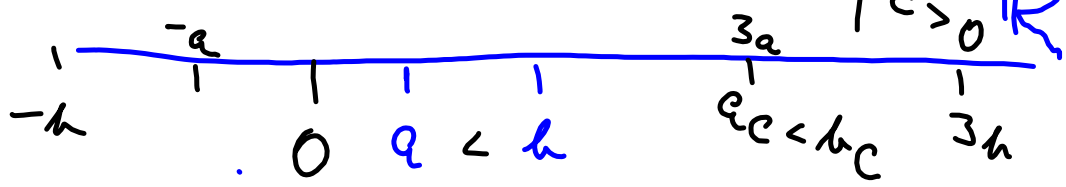
$M = \{1, 2, a, c\}$

$a = b \quad / \cdot c$

$a \cdot c = b \cdot c$

$(a + b) + c = a + (b + c)$

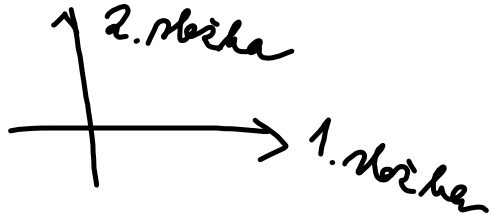
$a < b \quad / \; c > 0$



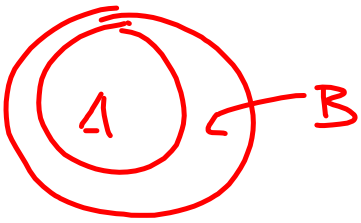
$$A \times B = \{ [a, b] \mid a \in A, b \in B \}$$
$$(a, b)$$

$$A \times B \times C = \{ [a, b, c] \mid a \in A, b \in B, c \in C \}$$

$\mathbb{R}^2$ $\mathbb{R}^3$ $\mathbb{R}$

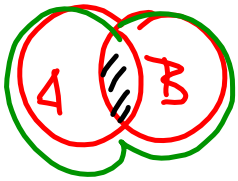


$A \subseteq B$ každý prvek z A leží v B



$A \subset B$ znamená $A \subseteq B$ a zároveň $A \neq B$

$A \cap B$ $A \cup B$



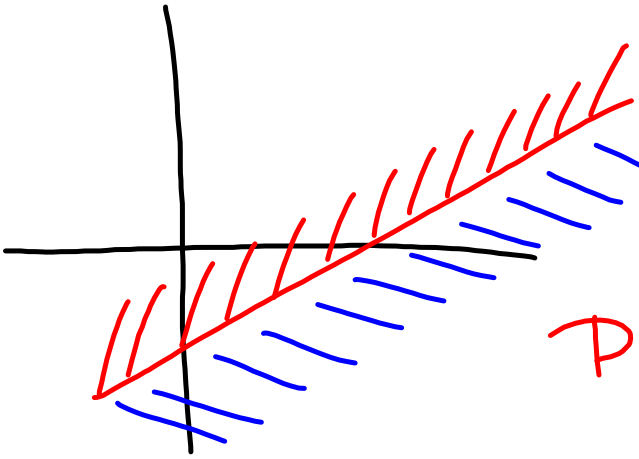
Prázdná množina $\emptyset$, $\{\}$,

$\mathbb{N} \subset \mathbb{Z} \subset \mathbb{Q} \subset \mathbb{R}$ $[a,b) = \{x \in \mathbb{R}$ $a \leq x < b\}$

Intervaly $(-\infty, b) = \{x \in \mathbb{R}$ $x < b\}$

$(a,b) = \{x \in \mathbb{R}\,;\, a < x < b\}$

$\langle a,b \rangle = \{x \in \mathbb{R}\,;\, a \leq x \leq b\} = [a,b]$ $[a,\infty)$



$ax+by+c=0$

$P=\{[x,y]\in\mathbb{R}^2;$

$ax+by+c\geq 0$

≤ 0

$y = -\frac{2}{3}x - \frac{5}{3}$

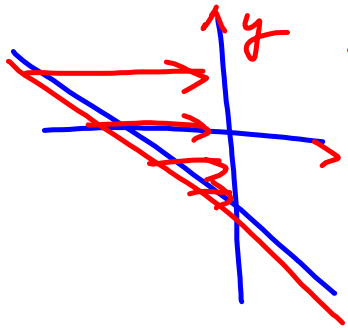
$x \in \mathbb{R} \rightsquigarrow$ naúnie jedna y

$y = f(x) = -\frac{2}{3}x - \frac{5}{3}$

$\emptyset \neq D \subseteq \mathbb{R}$

$f : D \to \mathbb{R}$

$y = -\frac{2}{3}x - \frac{5}{3}$



$D(f) = \mathbb{R}$

$H(f) = \mathbb{R}$

Stavová rovnice ideálního plynu

$p \cdot V = nRT$

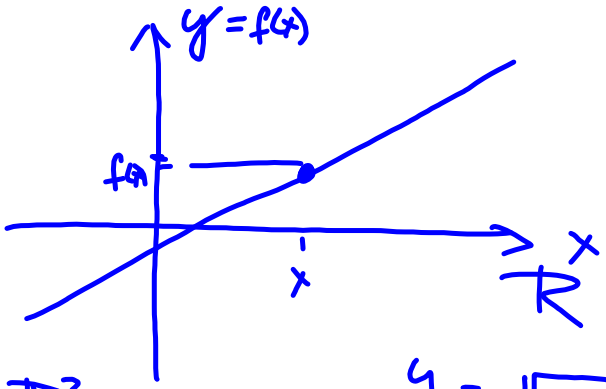
V konst, n konst

$p = \frac{nR}{V} \cdot T$

$\Rightarrow$

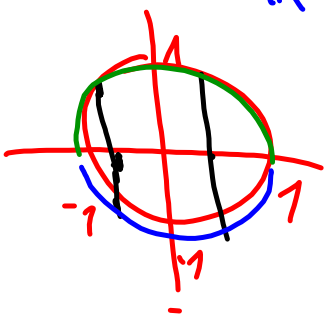
$y = f(x) = ax$

Graf funkce



Graf $f = \{[x, f(x)] \subset \mathbb{R}^2 ; x \in D(f)\}$ $y = -\sqrt{1-x^2}$

$x^2 + y^2 = 1$



$x^2 + y^2 = 1$

$y^2 = 1 - x^2$

$|y| = \sqrt{1-x^2}$

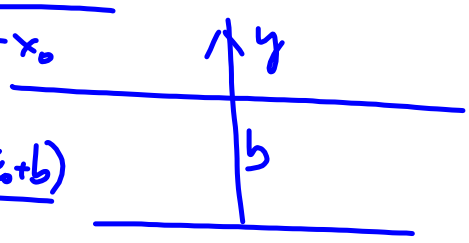
$y = \sqrt{1-x^2}$

$f(x) = b$

$\operatorname{tg}\alpha = \frac{f(x_1)-f(x_2)}{x_1-x_0}$

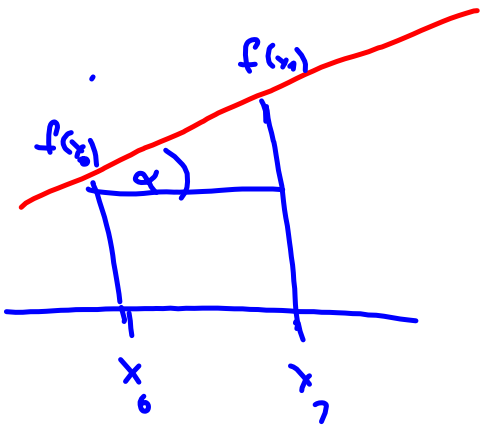
$= \frac{ax_1+b-(ax_0+b)}{x_1-x_0}$

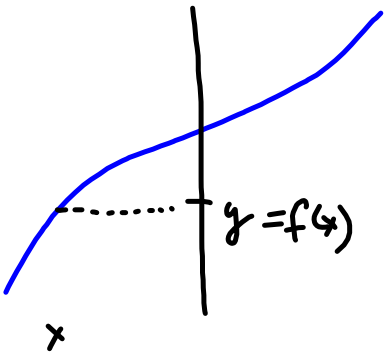
$= \frac{a(x_1-x_0)}{x_1-x_0} = a$



$f(x) = ax + b$

$a > 0$





prosta

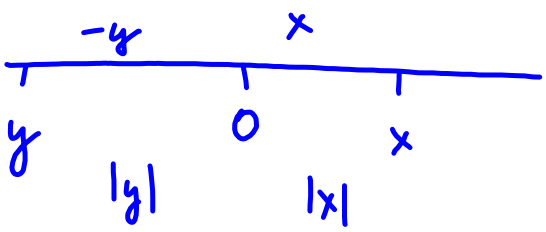
není prosta

rovnou
bijekci $\Rightarrow$ prosté

$\sin 2\alpha = f(g(\alpha)) = (f \circ g)(\alpha)$

$g(\alpha) = 2\alpha$

$f(x) = \sin x$



přímá úměrnost

$f(x) = ax$

nepřímá úměrnost

$g(x) = \frac{a}{x}$

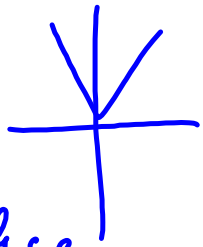
$p = \frac{nR}{V} T$

konst

T konst, V se mění

$p = nRT : V$

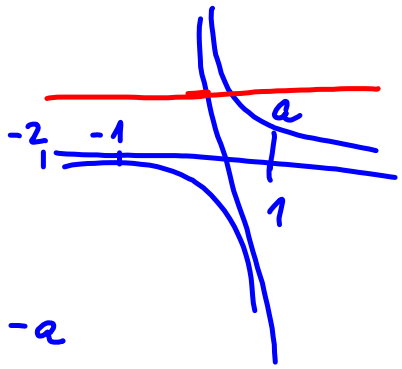
konst



$f(x) = -f(-x)$ liché funkce

$g(x) = g(-x)$ sudé

$a|x|+b$ je sudá funkce



$f(x) = \frac{a}{x}$ $a > 0$

$H(f) = \mathbb{R} - \{0\}$ $x \neq 0$

Je f klesající na celém def. oboru?

$-a$ $f(-1)$ $f(1)$

$-1 < 1$ ale $-a < a$ f klesající na $(-\infty, 0)$

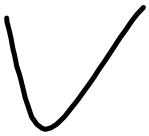
$-2 < -1$ ale $f(-2) = -\frac{a}{2} > f(-1) = -a$ a na $(0, \infty)$

$D(f) = \mathbb{R} \setminus \{0\} = H(f)$

$y = \frac{a}{x} \qquad a > 0$

$\frac{y}{a} = \frac{1}{x}$ $\qquad f^{-1}(y) = \frac{a}{y}$

$\frac{a}{y} = x$ $\qquad f^{-1}(f(x)) = f^{-1}\left(\frac{a}{x}\right) = \frac{a}{\left(\frac{a}{x}\right)} = \frac{ax}{a} = x$



$$ax^2+bx+c = a\left(x^2+\frac{b}{a}x\right)+c$$

$$= a\left\{\left(x+\frac{b}{2a}\right)^2-\frac{b^2}{4a^2}\right\}+c$$

$$x^2+2x\frac{b}{2a}+\frac{b^2}{4a^2}$$

$$= a\left(x+\frac{b}{2a}\right)^2-\frac{b^2}{4a}+c$$

$x_0=-\frac{b}{2a}$

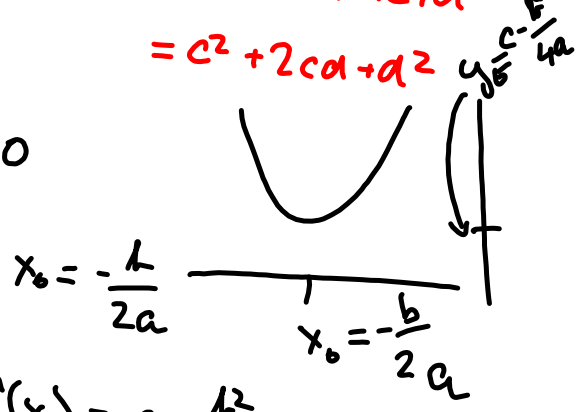
$(c+d)^2=$

$(c+d)(c+d)=$

$=c^2+cd+dc+d^2$

$=c^2+2cd+d^2$

$a>0$



$f(x_0)=c-\frac{b^2}{4a}$