

$$P_r: \frac{1}{x+2} \leq \frac{3}{x-2}$$

$$D(f) = \mathbb{R} - \{-2\}$$

$$\text{NULOVE BODY: } -2(x+4) = 0 \Rightarrow x = -4$$

$$x^2 - 4 = 0 \Rightarrow (x+2)(x-2) = 0 \Rightarrow x = \pm 2$$

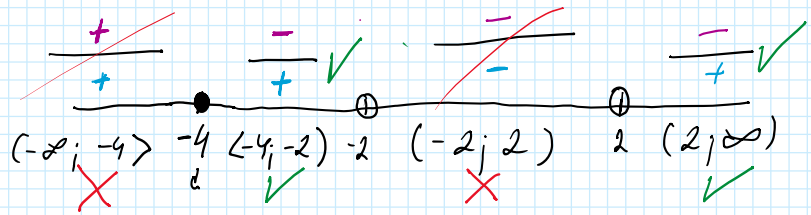
$$\frac{1}{x+2} - \frac{3}{x-2} \leq 0$$

$$\frac{x-2-3x-6}{(x+2)(x-2)} \leq 0$$

$$\frac{-2x-8}{(x+2)(x-2)} \leq 0$$

$$\frac{-2(x+4)}{x^2-4} \leq 0$$

$$\frac{+}{-} \vee \frac{-}{+}$$



$$\Leftrightarrow -2(x+4) \geq 1 \wedge x^2-4 < 0 \vee -2(x+4) \leq 0 \wedge x^2-4 > 0$$

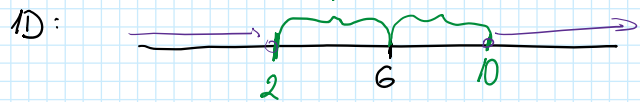
$$K \in (-4; -2) \cup (2; \infty)$$

ABSOLUTNÁ HODNOTA:

$$\text{DEF: } |x| = \begin{cases} x & ; x \geq 0 \\ -x & ; x < 0 \end{cases}$$

GEOMETRICKÝ VÝZNAM

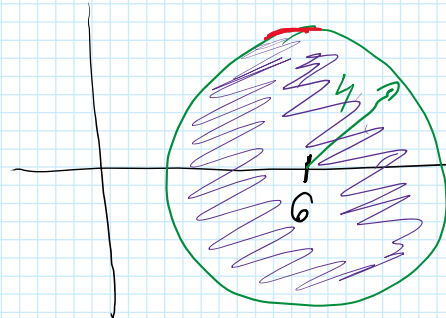
$$|x-6| = 4$$



$$1D: |x-6| \leq 4 \quad [2; 10]$$

$$|x-6| > 4 \quad (-\infty; 2) \cup (10; \infty)$$

2D:



$$P_h: |3x-2| + 4 = |2x+3|$$

$$3x-2=0 \Rightarrow x=\frac{2}{3}$$

$$2x+3=0 \Rightarrow x=-\frac{3}{2}$$

$x < -\frac{3}{2}$	$-\frac{3}{2} < x < \frac{2}{3}$	$x > \frac{2}{3}$
$-$	$-$	$+$
$-$	$+$	$+$

$$(-\infty; -\frac{3}{2}) \quad -\frac{3}{2} \quad (-\frac{3}{2}; \frac{2}{3}) \quad \frac{2}{3} \quad (\frac{2}{3}; \infty)$$

$$I_1: (-\infty; -\frac{3}{2})$$

$$-3x+2+4 = -2x-3$$

$$9 = x \notin (-\infty; -\frac{3}{2})$$

$$K_1 = \emptyset$$

$$I_2: (-\frac{3}{2}; \frac{2}{3})$$

$$-3x+2+4 = 2x+3$$

$$3 = 5x$$

$$\frac{3}{5} = x \in (-\frac{3}{2}; \frac{2}{3})$$

$$K_2 = \{\frac{3}{5}\}$$

$$I_3: (\frac{2}{3}; \infty)$$

$$3x-2+4 = 2x+3$$

$$x = 1 \in (\frac{2}{3}; \infty)$$

$$K_3 = \{1\}$$

$$K = \{\frac{3}{5}; 1\} \rightarrow \text{výsledok}$$

$$P_L: |x| + |x-5| < 7$$

$$\begin{array}{ccccccc} x_1 < 0 & x_2 < 0 & x_1 \geq 0 & x_2 \leq 0 & x_1 > 0 & x_2 > 0 \\ \text{---} & \text{---} & \text{+} & \text{---} & \text{+} & \text{+} \\ \hline (-\infty, 0) & 0 & 0; 5 & 5 & (5; \infty) \end{array}$$

$$I_1: (-\infty; 0)$$

$$\begin{aligned} -x - x + 5 &< 7 \\ -2x &< 2 \quad | : (-2) \end{aligned}$$

$$K_1: (-1; 0)$$

$$I_2 : \langle 0,5 \rangle$$

$$\cancel{x} - \cancel{x} + 5 < 7$$
$$5 < 7$$

$$k_2: \langle 0, 5 \rangle$$

$$I_3: (5, \infty)$$

$$\begin{aligned} x + x - 5 &< 7 \\ 2x &< 12 & | :2 \\ x &< 6 \end{aligned}$$

$$K_3 \triangleq (5, 6)$$

$$K = K_1 \cup K_2 \cup K_3 = (-1; 6)$$

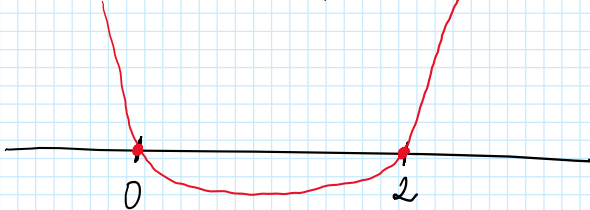
P₂: $|x^2+1| \leq 2x+1$
 $x^2+1 \leq 2x+1$

$$x^2 - 2x \leq 0$$

$$x(x-2) \leq 0$$

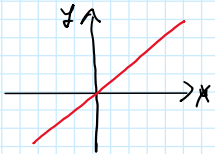
$$K = \langle 0, 2 \rangle$$

$$x^2 + 1 > 0 \text{ per } \forall x \in \mathbb{R}$$

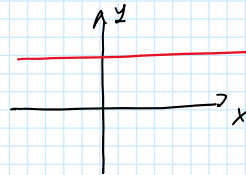


ZAKLADNÉ ELEMENTÁRNE FUNKCIE

$$f: y = x; \quad x \in \mathbb{R}$$



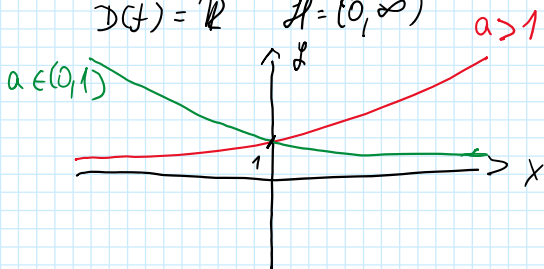
$$f: y = \cos x, x \in \mathbb{R}$$



EXPONENCIALNA FUNKCIA:

$$f: y = a^x; a \neq 1 \quad a > 0$$

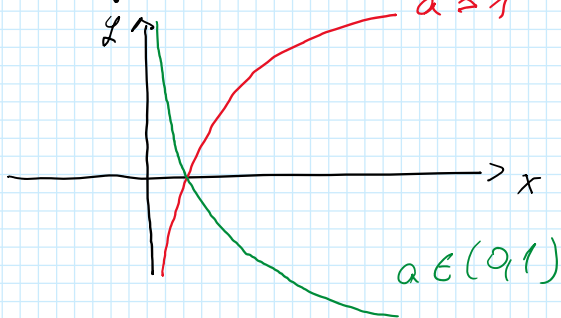
$$D(f) = \mathbb{R} \quad \mathcal{H} = [0, \infty)$$



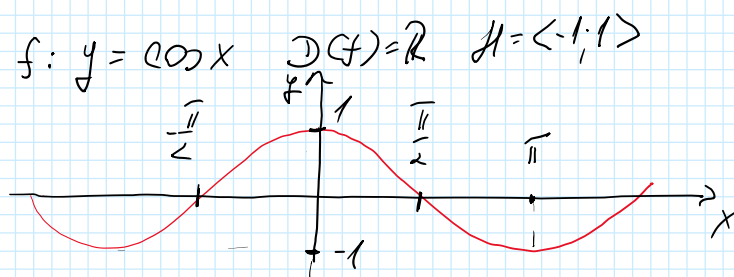
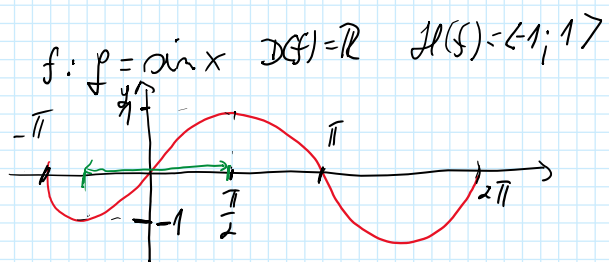
LOGARITMICKÁ FUNKCE

$$f: y = \log_a x \quad a \neq 1 \quad a > 0$$

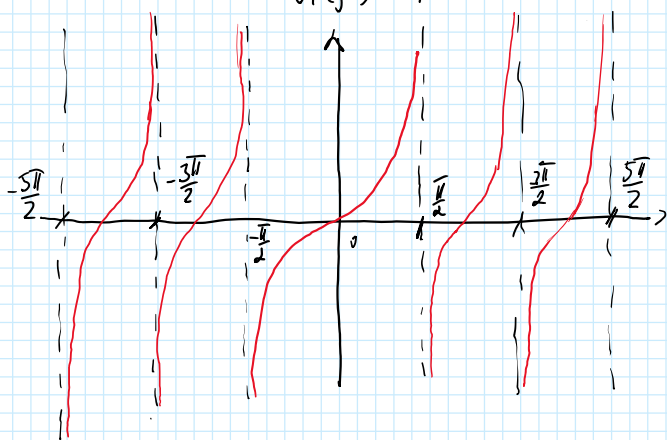
$$\mathcal{D}(f) = (0, \infty) \quad \mathcal{H}(f) = \mathbb{R}$$



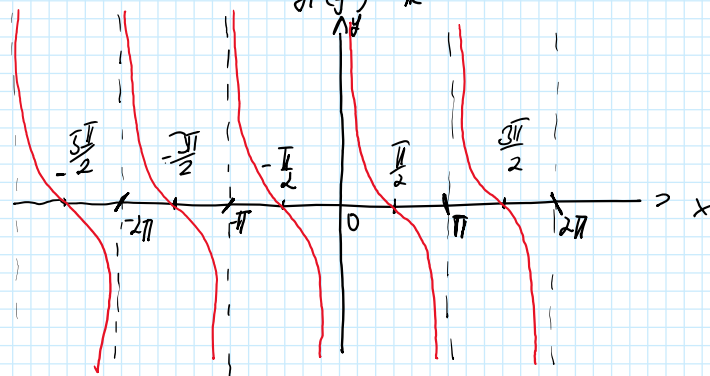
TRIGONOMETRIC FUNCTIONS



$f: y = \tan x \quad D(f) = \mathbb{R} \setminus \{(2k+1)\pi; k \in \mathbb{Z}\}$
 $H(f) = \mathbb{R}$



$f: y = \cot x \quad D(f) = \mathbb{R} \setminus \{k\pi; k \in \mathbb{Z}\}$
 $H(f) = \mathbb{R}$



TRIGONOMETRIC FUNCTIONS:

