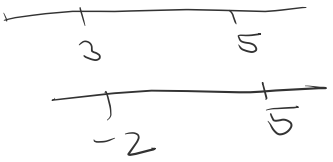
(*) $|a| = \begin{cases} a; & a \geq 0 \\ -a; & a < 0 \end{cases}$

$|a|$

$|a-b|$ → $|a-b|$

$|5-3|$



$|5-2|$

$|5-(-2)|$

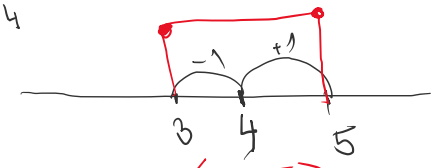
$|x-(-7)|$

„Prečítajte" geometrický význam absolutnej hodnoty a vyznačte na číselnej osi

$|x-4| \leq 1$

$x-4=0$

$x=4$



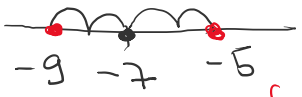
$\langle 3,5 \rangle$

$|x+7| = 2$

$x+7=0$

$x=-7$

x od -7



$x \in \{-9,-5\}$

Upravte nasledujúci výraz tak, aby neobsahoval absolútnu hodnotu:

$$G(x) = |x^2| + 3|2-x|.$$

$|x^2| + 3|2-x| =$

$x^2 \geq 0$

(*)

$2-x \geq 0$ → $|2-x| = 2-x$

$2-x < 0$ → $|2-x| = -2+x$

$x^2 + 3(2-x) = x^2 + 6 - 3x$; $x \leq 2$

$x^2 + 3(-2+x) = x^2 - 6 + 3x$; $x > 2$

$G(0) = |0^2| + 3|2-0| = 0 + 6 = 6$ = $G(x) = x^2 + 6 - 3x$

$G(0) = 0 + 6 - 0 = 6$

$G(3) = |3^2| + 3|2-3| = 9 + 3 = 12$ = $G(x) = x^2 - 6 + 3x \Rightarrow G(3) = 12$

Upravte nasledujúci výraz tak, aby neobsahoval odmocninu ani absolútnu hodnotu:

$\sqrt{x^2} = |x|$ →

$$M(x) = \sqrt{x^2 - 6x + 9} = \sqrt{(x-3)^2} = |x-3|$$

$M(x) = |x-3|$

$x-3 < 0$; $x < 3$ → $M(x) = -x+3$

$x-3 \geq 0$; $x \geq 3$ → $M(x) = x-3$

Upravte nasledujúci výraz tak, aby neobsahoval absolútnu hodnotu:

$\sqrt{9} = \begin{matrix} 3 \\ -3 \end{matrix}$

$$P(x) = \frac{x + \sqrt{x^2}}{|x|} = \begin{cases} 2\ \checkmark; & x > 0 \\ -2; & x < 0 \\ 0; & x < 0 \end{cases}$$

$$g(x) = \frac{x + |x|}{|x|}$$

$x > 0$ ---- $\frac{x+x}{x} = \frac{2x}{x} = 2$

$x < 0$ ---- $\frac{x-x}{-x} = \frac{0}{-x} = 0$

$g(2) = \frac{2+|2|}{|2|} = \frac{2+2}{2} = 2$

$g(-2) = \frac{2+(-2)}{-2} = 0$