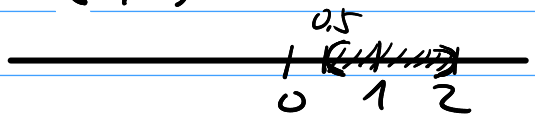
$\mathbb{R}$ $\quad \langle a, b \rangle$ OTVORENI INTERVAL $\quad a, b \in \mathbb{R}$ $\quad (a, b)$

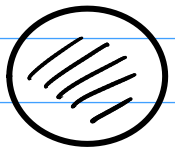
$\langle a, b \rangle \overset{\text{def}}{=} \{ x \in \mathbb{R} \mid a < x < b \}$



ZATVORENI $[a, b] = \{ x \in \mathbb{R} \mid a \leq x \leq b \}$

poluotvoreni $[a, b\rangle = \{ x \in \mathbb{R} \mid a \leq x < b \}$

$\langle a, b] = \{ x \in \mathbb{R} \mid a < x \leq b \}$



$A = \langle 2, 3 \rangle$ $\quad 2.5 \in A$, $1.5 \notin A$

$2.4 \in A$, $2 \notin A$

$B = [2, 3]$ $\quad 2 \in B$

$[3, 2] = \emptyset = \{ x \mid 2 \geq x \geq 3 \}$ toga nema

linearne jednadžbe

$2x + 3 = 7x - 5$ $\quad \{ -7x$

$2x - 7x + 3 = -5$ $\quad \{ -3$

$-5x = -5 - 3 = -8$ $\quad / : (-5)$

$x = \frac{-8}{-5} = \frac{8}{5}$

$3 < 5 \quad / : (-1)$

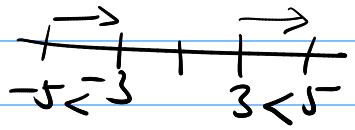
$-3 > -5$

linearne nejednadžbe

$2x + 3 < x - 5$

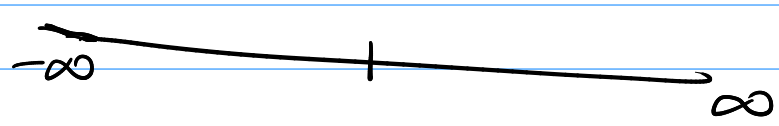
$2x - x < -5 - 3$

$\boxed{x < -8}$



$(-\infty, -8)$

$\langle -\infty, -8 \rangle$



$\langle -\infty, a \rangle = \{ x \in \mathbb{R} \mid x < a \}$ otvoreni

$\langle a, +\infty \rangle = \{ x \in \mathbb{R} \mid x > a \}$ $\quad a \in \mathbb{R}$

$\langle -\infty, +\infty \rangle = \mathbb{R}$

$$\frac{2x+1}{x-1} < 0$$

NE SMIJEMO množiti s $x-1$ jer je nejednadžba

nezna mo predzna{

$\frac{a}{b} \sim \frac{c}{d}$ ako $a \cdot d = b \cdot c$

$\frac{a}{b} - \frac{c}{d} < 0$

$\frac{a}{b} < \frac{c}{d}$

razlomak (racionalni broj predstavljen tim razlomak) je manji od nule ako su brojnik i nazivnik različitog predznaka

dalje ili

$\frac{ad-bc}{bd} < 0$

ili

① $\emptyset \cap \begin{cases} 2x+1 < 0 \\ x-1 > 0 \end{cases} \rightarrow \begin{matrix} 2x < -1, & x < -\frac{1}{2} \\ x > 1 & \end{matrix}$

② $\cap \begin{cases} 2x+1 > 0 \\ x-1 < 0 \end{cases} \quad x > -\frac{1}{2}, \quad x < 1$

$\langle -\frac{1}{2}, \infty \rangle$, $\langle -\infty, 1 \rangle$ → presjek

① $x < -\frac{1}{2}$

$\emptyset$

② $\langle -\frac{1}{2}, \infty \rangle \cap \langle -\infty, 1 \rangle = \langle -\frac{1}{2}, 1 \rangle$

Skup rješenja $S = \langle -\frac{1}{2}, 1 \rangle$

Rješenje je $x \in \langle -\frac{1}{2}, +1 \rangle$

sve na lijevu stranu

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

$\frac{x-1}{2x-3} < -1$

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

$\frac{3x-4}{2x-3} < 0$

$\frac{a}{b} + \frac{c}{d} = \frac{ad+bc}{bd}$

$\frac{ad}{bd} + \frac{bc}{bd}$

① $3x-4 < 0 \quad x < \frac{4}{3}$

$2x-3 > 0 \quad 2x > 3 \quad x > \frac{3}{2}$

$\frac{4}{3}$, $\frac{3}{2}$, 1, 2, $\emptyset$

② $3x-4 > 0 \rightarrow x > \frac{4}{3}$

$2x-3 < 0 \rightarrow x < \frac{3}{2}$

$\frac{4}{3} - \frac{3}{2} = \frac{4 \cdot 2 - 3 \cdot 3}{6} = \frac{-1}{6}$

$\Rightarrow \frac{4}{3} < \frac{3}{2}$

$\langle \frac{3}{2}, \frac{4}{3} \rangle$

$\frac{4}{3}$, $\frac{3}{2}$

$S = \langle \frac{3}{2}, \frac{4}{3} \rangle$

$x^2+5x+7=0$

$(x+a)^2 = x^2+2a\cdot x+a^2$

$(x+a)\cdot(x+a)$

$\left(x+\frac{5}{2}\right)^2-\left(\frac{5}{2}\right)^2+7=0$

$x^2+5x+\left(\frac{5}{2}\right)^2$

$\left(x+\frac{5}{2}\right)^2=-7+\frac{25}{4}=\frac{-28+25}{4}=\frac{-3}{4}$

$\left(x+\frac{5}{2}\right)^2=-\frac{3}{4} \quad /\pm\sqrt{\ }$

$i^2=-1$

$\sqrt{7}$

$(i\sqrt{7})^2=-7$

$2^2=4$

$2=\sqrt{4}$

$\sqrt{\frac{a}{b}}=\frac{\sqrt{a}}{\sqrt{b}}$

$\frac{\sqrt{a}\cdot\sqrt{a}}{\sqrt{b}\sqrt{b}}=\frac{a}{b}$

$x+\frac{5}{2}=\pm\sqrt{-\frac{3}{4}}=\pm i\frac{\sqrt{3}}{2} \quad /-\frac{5}{2}$

$x=-\frac{5}{2}\pm\frac{\sqrt{3}}{2}i$

$x_1=-\frac{5}{2}+\frac{\sqrt{3}}{2}i$

$x_2=-\frac{5}{2}-\frac{\sqrt{3}}{2}i$

$5x^2+x+6=0 \quad /:5$

$x^2+\frac{x}{5}+\frac{6}{5}=0$

$\left(x+\frac{1}{5}\right)^2+\left(\frac{2}{5}\right)^2+\frac{6}{5}=0$

$x^2+\frac{2}{5}x+\left(\frac{2}{5}\right)^2$

$x^2+2ax+a^2$

$\left(x+\frac{1}{5}\right)^2=-\frac{6}{5}+\frac{4}{25}=\frac{-25+4}{25}$

$\left(x+\frac{1}{5}\right)^2=\frac{-20}{25}=\frac{-4}{5}$

$x=-\frac{1}{5}\pm\frac{2}{\sqrt{5}}i$

$\frac{2\sqrt{5}}{5}=\frac{2}{\sqrt{5}}\frac{\sqrt{5}}{\sqrt{5}}$

1 1 2 3 5 8 13 Fibonacci

F_1 F_2 F_3 F_4 F_5 F_6 F_7 ...

$F_1 = 1$
$F_2 = 1$ } baza rekurzije

$n = 1$

$F_{n+2} = F_{n+1} + F_n$ } rekurzivno

$F_3 = F_2 + F_1$

$5! = 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1$

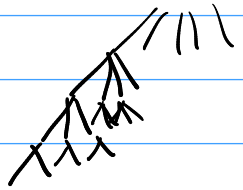
$0! = 1! = 1$

$(n+1)! = (n+1) \cdot n!$

a b c d e

a –
b b
c –
d –
e –

$5 \times 4 \times 3 \times 2 \times 1$



$m + 1(n) = 1(m+n)$

$5 + 7 = (5+6)+1$

$5 + 8 = (5+7)+1$

wz

$\mathbb{N} \xrightarrow{a} S$

$a(1) = a_1$

$a(2)$