

Pripremna nastava matematike 2025

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MP, MM, ME, ST ST

Funkcije

Skicirati funkciju $f = \{(1, 1), (2, \frac{1}{2}), (3, \frac{1}{3})\}$, odrediti domen A i kodomen B funkcije f .

$$A = \{1, 2, 3\}$$

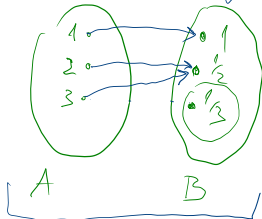
$$B = \{1, \frac{1}{2}, \frac{1}{3}\}$$

$$R_f = \{(1, \frac{1}{2})\}$$

$$f = \begin{pmatrix} 1 & 2 & 3 \\ 1 & \frac{1}{2} & \frac{1}{3} \end{pmatrix}$$

$$\mathbb{N} \setminus \{1\}$$

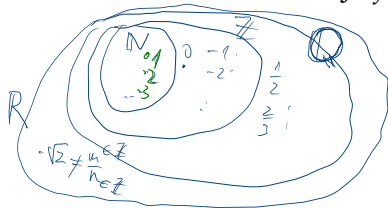
$$\mathbb{N} \setminus \{1\}$$



Napisati formulu za funkciju f .

$$f(x) = \frac{1}{x}$$

$$f: \mathbb{R} \setminus \{0\} \rightarrow \mathbb{R}$$

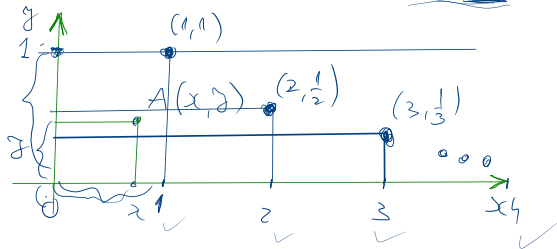


Nizovi $f: \mathbb{N} \rightarrow \mathbb{R}$ $a_1, a_2, a_3, \dots$ $a_n = \frac{1}{n}$ $a(n) = \frac{1}{n}$ $1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \dots \rightarrow ?$

Skicirati funkciju $f: \mathbb{N} \rightarrow \mathbb{R}$ datu formulom $f(n) = \frac{1}{n} \stackrel{\checkmark}{=} f_n$

a_n

$a(1) = a_1$
 $\uparrow \quad \uparrow$



$a_n \xrightarrow{n \rightarrow \infty} l = ?$

$\frac{1}{n} \rightarrow 0$

$l = \lim_{n \rightarrow \infty} a_n$

$\lim_{n \rightarrow \infty} \frac{1}{n} = 0$

Skicirati u koordinatnom sistemu ordinatni skup tačaka funkcije f .

Realne funkcije realne promenljive $f: \mathbb{R} \rightarrow \mathbb{R}$

$$\frac{1}{2}, x=2 \quad \downarrow \quad y=f(x)$$

$$2 = \frac{1}{x} ? \quad x = \frac{1}{2} \quad \downarrow \quad \frac{1}{x}$$

$$\frac{1}{\frac{1}{2}} = 2$$

$$\frac{1}{x} = 0$$

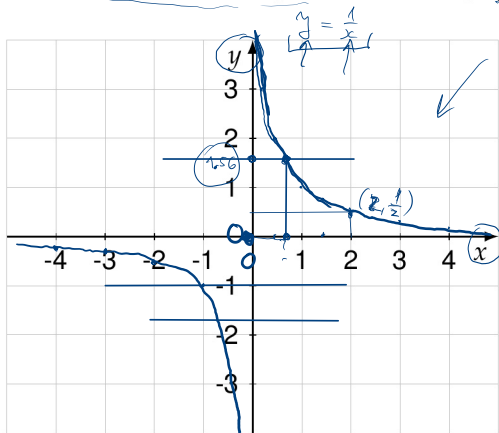
$$x = ?$$

$$\frac{1}{\infty} = 0 ?$$

Naći maksimalni domen i minimalni kodomen realne funkcije realne promenljive $f(x) = \frac{1}{x}$.

$$D_f = \mathbb{R} \setminus \{0\} \quad R_f = \mathbb{R} \setminus \{0\}$$

Skicirati u koordinatnom sistemu ordinatni skup tačaka funkcije $y = f(x)$.

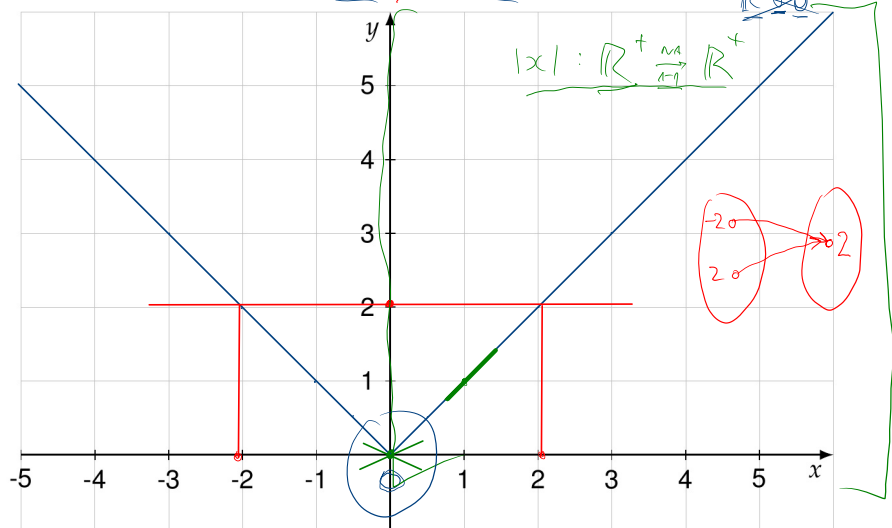


$$\frac{1}{x} = 1,56$$

$$x = \frac{1}{1,56} \approx 0,641$$

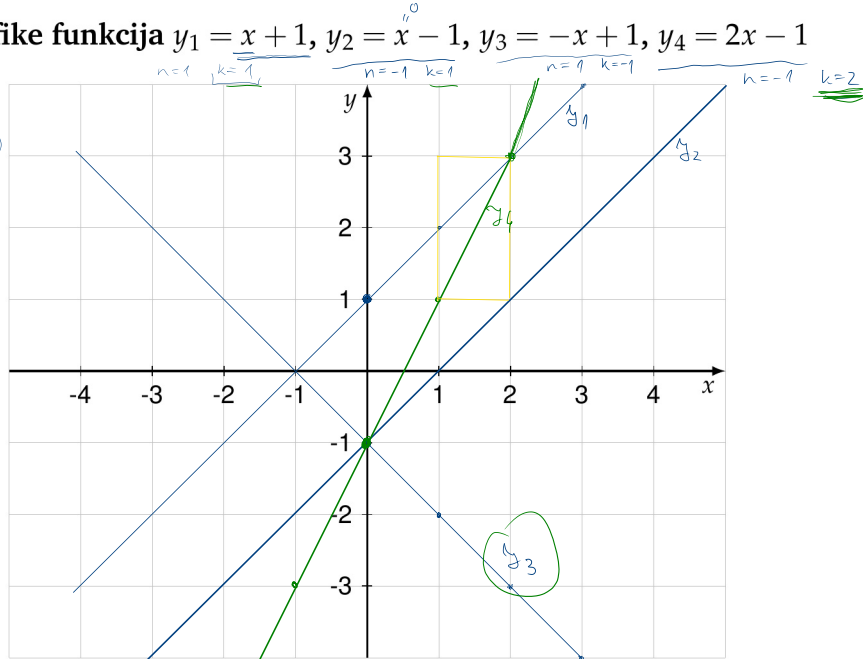
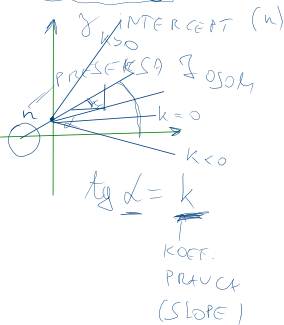
Scientific calculator

Skicirati grafik funkcije $y = |x|$: $\mathbb{R} \xrightarrow{\text{NA}} \mathbb{R}^+ = [0, +\infty) = \mathbb{R}^+ \cup \{0\}$



Skicirati grafike funkcija $y_1 = x + 1$, $y_2 = x - 1$, $y_3 = -x + 1$, $y_4 = 2x - 1$

$$y = k \cdot x + n$$



Skicirati grafike funkcija $y_1 = x^2$

$$\begin{array}{c|ccccccc} x & 0 & 1 & -1 & 2 & -2 & 3 & 1.5 & 0.5 \\ \hline J_1 & 0 & 1 & 1 & 4 & 4 & 9 & 2.25 & 0.25 \\ J_2 & -3 & -2 & -2 & 1 & 1 & 6 & -0.75 & -2.75 \end{array}$$

3) $(-\infty, 0)$ —

$$g \nearrow (0, +\infty)$$

$$\min (0, 0)$$

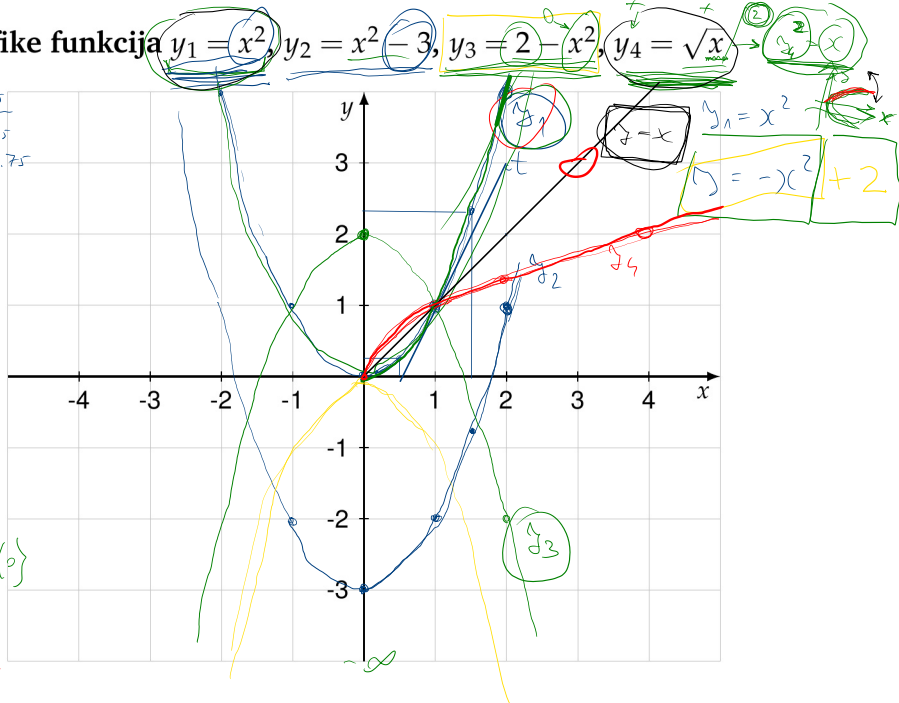
$$j_1: \mathbb{R} \xrightarrow{NA} [0, +\infty)$$

~~NA~~

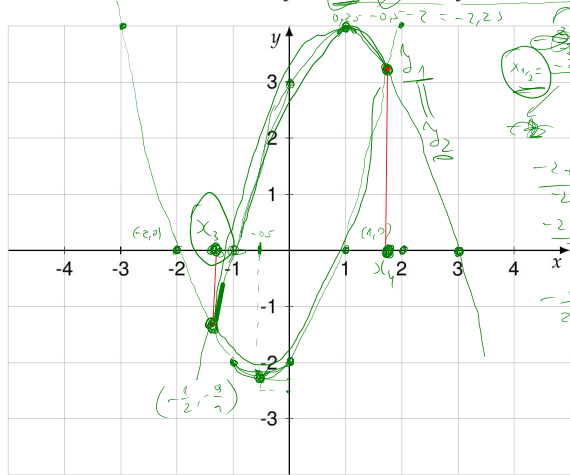
$$f_3: \mathbb{R} \rightarrow (-\infty, 2]$$

$$\gamma_n: \mathbb{R}_v^+ \setminus \{0\} \rightarrow \mathbb{R}_v^+ \setminus \{0\}$$

$$\gamma_4: [0, +\infty) \rightarrow [0, +\infty)$$



Skicirati grafike funkcija $y_1 = x^2 + x - 2$, $y_2 = -x^2 + 2x + 3$



$$x_{1,2} = \frac{-2 \pm \sqrt{4 + 12}}{2}$$

$$\frac{-2 + 4}{2} = -1$$

$$\frac{-2 - 4}{2} = -3$$

$$\frac{-b}{2a} = \frac{-2}{2} = -1$$

$$y = a \cdot x^2 + b \cdot x + c$$

$$a \neq 0 \rightarrow \text{Kvadratna F.}$$

$$(Parabola)$$

$$a > 0 \rightarrow \text{min}$$

$$a < 0 \rightarrow \text{max}$$

$$\left(-\frac{b}{2a}, y\left(-\frac{b}{2a}\right)\right)$$

$$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$y_1: a = 1, b = 1, c = -2$$

$$\min\left(-\frac{1}{2}, -\frac{9}{4}\right)$$

$$x_{1,2} = \frac{-1 \pm \sqrt{1 + 8}}{2}$$

$$y_1 = y_2 \quad x^2 + x - 2 = -x^2 + 2x + 3$$

$$2x^2 - x - 5 = 0$$

$$x_{3,4} = \frac{1 \pm \sqrt{1 + 40}}{4}$$

$$\frac{1 + \sqrt{41}}{4} = 1,85 = x_4$$

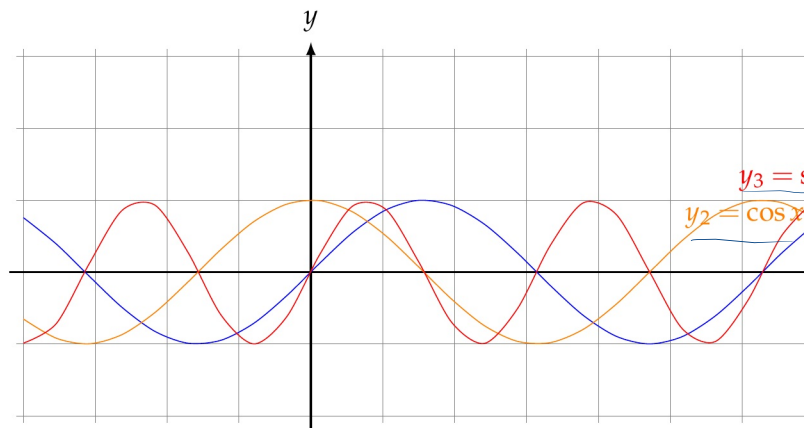
$$\frac{1 - \sqrt{41}}{4} = -1,35 = x_3$$

Rešiti nejednačinu $x^2 + x - 2 < -x^2 + 2x + 3$

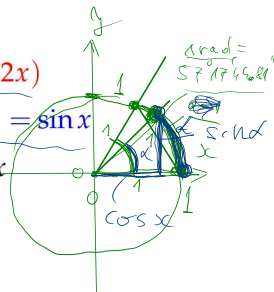
$$y_1 < y_2$$

$$x \in (x_3, x_4)$$

Skicirati grafike funkcija $y_1 = \sin x$, $y_2 = \cos x$, $y_3 = \sin(2x)$, $y_4 = \arcsin x$



NA BAVITI
KALKULATOR



Kotirati na grafiku bitne tačke.