

4.

dvoznamenkasti broj zapišemo ovako: $10x + y$

zbroj znamenaka zapišemo ovako: $x + y = 8$

Ako znamenke zamjene mjesta broj se umanjuje za 18

zapišemo ovako:

$$10x + y - 18 = 10y + x$$

i sada imamo sustav od dvije jednačbe sa dvije nepoznanice:

$$x + y = 8$$

$$10x + y - 18 = 10y + x$$

iz prve izlučimo y $x + y = 8$

$$y = 8 - x$$

i to uvrstimo u drugu jednačbu:

$$10x + y - 18 = 10y + x$$

$$10x + 8 - x - 18 = 10 \cdot (8 - x) + x$$

$$10x - x + 8 - 18 = 80 - 10x + x$$

$$9x - 10 = 80 - 9x$$

$$9x + 9x = 80 + 10$$

$$18x = 90 \quad /:18$$

$$x = 5$$

$$y = 8 - x$$

$$y = 8 - 5$$

$$y = 3$$

Traženi broj je:

$$10x + y = 10 \cdot 5 + 3 = 53$$

5.

$$\frac{x^2 - 3x}{x^3 - 6x^2 + 9x} = \frac{x \cdot (x-3)}{x \cdot (x^2 - 6x + 9)} = \frac{x \cdot (x-3)}{x \cdot (x^2 - 2 \cdot x \cdot 3 + 3^2)} = \frac{x \cdot (x-3)}{x \cdot (x-3)^2} = \frac{\cancel{x} \cdot (\cancel{x-3})}{\cancel{x} \cdot (x-3) (\cancel{x-3})} = \frac{1}{x-3}$$

6.

$$\begin{aligned}
 6) \left(\frac{3x^3}{2y^4}\right)^3 \cdot \left(\frac{4x^2}{3y^3}\right)^2 &= \frac{3^3 \cdot (x^3)^3}{2^3 \cdot (y^4)^3} \cdot \frac{4^2 \cdot (x^2)^2}{3^2 \cdot (y^3)^2} = \frac{27 \cdot x^{3 \cdot 3}}{8 \cdot y^{4 \cdot 3}} \cdot \frac{16 \cdot x^{2 \cdot 2}}{9 \cdot y^{3 \cdot 2}} = \frac{27x^9}{8y^{12}} \cdot \frac{16x^4}{9y^6} = \\
 &= \frac{3 \cdot 9 \cdot x^{3+6}}{8 \cdot y^{8+4}} \cdot \frac{8 \cdot 2 \cdot x^4}{9 \cdot y^6} = \frac{3 \cdot 9 \cdot x^3 \cdot x^9}{8 \cdot y^8 \cdot y^4} \cdot \frac{8 \cdot 2 \cdot x^4}{9 \cdot y^6} = \\
 &= \frac{3 \cdot \cancel{9} \cdot x^3 \cdot x^9}{\cancel{8} \cdot y^8 \cdot y^4} \cdot \frac{\cancel{8} \cdot 2 \cdot x^4}{\cancel{9} \cdot y^6} =
 \end{aligned}$$

7.

$$5x - 3(x - 1) = 4(x - 1) - (5x + 3) \quad \rightarrow \quad (-) \text{ ispred zagrade mjenja predznak svima u zagradi !}$$

$$5x - 3x + 3 = 4x - 4 - 5x - 3$$

$$5x - 3x - 4x + 5x = -3 - 3$$

$$3x = -6 \quad / : 3$$

$$x = -2$$

8.

$$1) \frac{1}{x-1} > 1 \quad \rightarrow \text{"jedinicu prebaci na ljevu stranu "}$$

$$\frac{1}{x-1} - 1 > 0$$

$$\frac{1-1 \cdot (x-1)}{x-1} > 0$$

$$\frac{1-x+1}{x-1} > 0$$

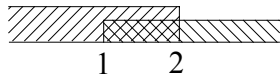
$$\frac{2-x}{x-1} > 0$$

I

$$2-x > 0 \quad , \quad x-1 > 0$$

$$-x > -2 \quad / : (-1) \quad x > 1$$

$$x < 2$$



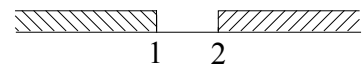
$$x \in \langle 1, 2 \rangle$$

II

$$2-x < 0 \quad , \quad x-1 < 0$$

$$-x < -2 \quad / : (-1) \quad x < 1$$

$$x > 2$$



$$x \in \emptyset$$

ukupno rješenje je: I. \cup II.

$$x \in \langle 1, 2 \rangle$$

9.

$$\left| \frac{2}{3}x - \frac{1}{2} \right| = 1$$

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

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

$$\frac{2}{3}x = -\frac{1}{2} \Big/ \cdot \frac{3}{2}$$

$$x = -\frac{1}{2} \cdot \frac{3}{2}$$

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

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

$$\frac{2}{3}x = 1 + \frac{1}{2}$$

$$\frac{2}{3}x = \frac{3}{2} \Big/ \cdot \frac{3}{2}$$

$$x = \frac{3}{2} \cdot \frac{3}{2}$$

$$x = \frac{9}{4}$$

11.

1) $||x|-1|$ za $x = \sqrt{2} - 1$

$$\left| \underbrace{|\sqrt{2}-1|}_{(+)} - 1 \right| = |\sqrt{2}-1-1| = \underbrace{|\sqrt{2}-2|}_{(-)} = -(\sqrt{2}-2) = -\sqrt{2}+2$$

13.

$$\begin{aligned} \frac{1}{\sqrt{2}\sqrt{2}\sqrt{2}} &= \frac{1}{\sqrt{\sqrt{2^2} \cdot 2\sqrt{2}}} = \frac{1}{\sqrt[4]{2^3 \cdot \sqrt{2}}} = \frac{1}{\sqrt[4]{\sqrt{(2^3)^2 \cdot 2^1}}} = \frac{1}{\sqrt[4]{2^6 \cdot 2^1}} = \frac{1}{\sqrt[8]{2^7}} \cdot \frac{\sqrt[8]{2^1}}{\sqrt[8]{2^1}} = \\ &= \frac{\sqrt[8]{2^1}}{\sqrt[8]{2^7 \cdot 2^1}} = \frac{\sqrt[8]{2}}{\sqrt[8]{2^8}} = \frac{\sqrt[8]{2}}{2} \end{aligned}$$

14.

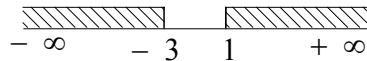
$$\begin{aligned} \sqrt[3]{\frac{x-2}{x+3}} \cdot \sqrt{\frac{x^2-9}{x^2-2x}} &= \sqrt[3]{\sqrt{\left(\frac{x-2}{x+3}\right)^2 \cdot \frac{x^2-9}{x^2-2x}}} = \sqrt[3 \cdot 2]{\frac{(x-2)^2}{(x+3)^2} \cdot \frac{(x-3) \cdot (x+3)}{x \cdot (x-2)}} = \\ &= \sqrt[6]{\frac{(x-2) \cancel{(x-2)}}{(x+3) \cancel{(x+3)}} \cdot \frac{(x-3) \cancel{(x+3)}}{x \cdot \cancel{(x-2)}}} = \sqrt[6]{\frac{(x-2)(x-3)}{x \cdot (x+3)}} = \\ &= \sqrt[6]{\frac{x^2-3x-2x+6}{x^2+3x}} = \sqrt[6]{\frac{x^2-5x+6}{x^2+3x}} \end{aligned}$$

15.

$$|x+1| \geq 2$$

$$|x+1| \geq 2 \quad \rightarrow \text{ po pravilu br.2:}$$

$$\begin{array}{ll} x+1 \leq -2 & x+1 \geq 2 \\ x \leq -2-1 & x \geq 2-1 \\ x \leq -3 & x \geq 1 \end{array}$$



$$x \in \langle -\infty, -3 \rangle \cup [1, +\infty \rangle$$

ili

ili drugačije zapisano isto rješenje:

$$x \leq -3 \text{ ili } x \geq 1$$

Rješenja ostalih zadataka biti će objavljena na
Ovoj stranici

<http://www.mim-sraga.com/Mat-2-nasa/inicijalni-test-MAT-2--br-1-rjesenja.htm>

U obliku videa ili slike ...

Univerzalna zbirka potpuno riješenih zadataka Matematika 2
Priručnik za samostalno učenje:

<http://www.mim-sraga.com/Zbirka-potpuno-rijesenih-zad-Mat-2.htm>

