

ŠTEVILSKÉ MNOSTVICE

Naravna št. $\mathbb{N} = \{1, 2, 3, \dots\}$

Cela števila $\mathbb{Z} = \{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$

Racionalna št. $\mathbb{Q} = \{\dots, -2\frac{1}{2}, -2, -1\frac{1}{2}, -\frac{1}{3}, 0, \frac{2}{3}, 1, 2\frac{1}{2}, \dots\}$

Realna št. $\mathbb{R} = \{\dots, -\sqrt{2}, -1, -\frac{1}{2}, 0, 0.5, \sqrt{2}, \sqrt{3}, \dots\}$

$v(15) = 15, 30, 45, \dots$

$$a) \left(\frac{2}{9} \cdot \frac{6 \cdot 2}{5} + \frac{1}{5} \right) : \frac{15}{7} = \left(\frac{4 \cdot 1}{15 \cdot 1} + \frac{1 \cdot 3}{5 \cdot 3} \right) : \frac{15}{7} = \left(\frac{4}{15} + \frac{3}{15} \right) : \frac{15}{7} =$$

$$\frac{7}{15} : \frac{15}{7} = \frac{7}{15} \cdot \frac{7}{15} = \underline{\underline{\frac{49}{225}}}$$

$$b) \frac{1}{3} \cdot \frac{\frac{3}{4}}{\frac{2}{3}} + 1 = \frac{1}{3} \cdot \frac{3 \cdot 3}{4 \cdot 2} + 1 = \frac{3}{8} + 1 = \frac{3}{8} + \frac{8}{8} =$$

$$= \frac{11}{8} = \underline{\underline{1\frac{3}{8}}}$$

$$c) 5 \cdot (2 - 3) - 4(6 - \overset{3}{(1 \cdot 3)}) + 15 = 5 \cdot (-1) - 4 \cdot 3 + 15 =$$

$$= -5 - 12 + 15 = \underline{\underline{-2}}$$

$$e) (11 - 4 \cdot 2)(15 - (8 - 5) \cdot 3 + 7 \cdot (-2)) =$$

$$(11 - 8) \cdot (15 - 3 \cdot 3 - 14) =$$

$$3 \cdot (15 - 9 - 14) =$$

$$3 \cdot (-8) = \underline{\underline{-24}}$$

$$d) (13,5 - 5\frac{2}{3} + 2,75 \cdot 0,4) \cdot 7,5 = \underline{\text{VLOMKI!!!}}$$

$$\left(\frac{27}{2} - \frac{17}{3} + \frac{11}{4} \cdot \frac{2}{5} \right) \cdot \frac{15}{2} = 13,5 = \frac{135}{10} = \frac{27}{2}$$

$$\left(\frac{27 \cdot 15}{2 \cdot 15} - \frac{17 \cdot 10}{3 \cdot 10} + \frac{11 \cdot 3}{10 \cdot 3} \right) \cdot \frac{15}{2} = v(10) = 10, 20, 30 \quad 5\frac{2}{3} = \frac{5 \cdot 3 + 2}{3} = \frac{17}{3}$$

$$\left(\frac{405}{30} - \frac{170}{30} + \frac{33}{30} \right) \cdot \frac{15}{2} = 2,75 = \frac{275 : 25}{100 : 25} = \frac{11}{4}$$

$$\frac{67 \cdot 134}{268} \cdot \frac{15}{2} = \frac{67}{1} = \underline{\underline{67}}$$

$$0,4 = \frac{4 : 2}{10 : 2} = \frac{2}{5}$$

$$7,5 = \frac{75}{10} = \frac{15}{2}$$

$$e) 1\frac{2}{5} \cdot 3,5 \cdot 5,625 =$$

$$5,625 = \frac{5625}{1000} = \frac{225}{40}$$

$$\frac{7}{5} \cdot \frac{32}{8} \cdot \frac{45}{8} = \frac{28}{1}$$

PERIODIČNA
DEC. STEVILKA

$$3,5 = 3,55555555...$$

$$14,67 = 14,67676767...$$

$$3,17 = 3,17777777...$$

$$\left\{ \begin{array}{l} X = 3,5 \\ 10X = 35 \end{array} \right. \cdot 10 \quad \left\{ \begin{array}{l} X = 3,5 \\ 10X = 35 \end{array} \right. \cdot 10$$

$$\begin{array}{r} -9X = -32 \\ X = \frac{32}{9} \end{array}$$

$$f) \quad 2, \overline{4} : \left(\frac{3 \cdot 4}{1 \cdot 3} + \frac{2 \cdot 1}{3 \cdot 1} \right) - 1 = \left. \begin{array}{l} X = 2, \overline{4} \quad | \cdot 10 \\ 10X = 24, \overline{4} \\ -9X = -22 \quad | : (-9) \\ X = \frac{22}{9} \end{array} \right\} -$$

$$\frac{22}{9} : \left(\frac{9}{3} + \frac{2}{3} \right) - 1 =$$

$$\frac{22}{9} : \frac{11}{3} - 1 =$$

$$\frac{22}{9} \cdot \frac{3}{11} - 1 = \frac{2 \cdot 1}{3 \cdot 1} - \frac{1 \cdot 3}{1 \cdot 3} = \frac{2}{3} - \frac{3}{3} = -\frac{1}{3}$$

ALGEBRSKI IZRAZI

$$(a \pm b)^2 = a^2 \pm 2 \cdot a \cdot b + b^2 \quad \text{kvadrat dvočlenika}$$

$$(a \pm b)^3 = a^3 \pm 3a^2b + 3ab^2 \pm b^3 \quad \text{kub dvočlenika}$$

$$a) \quad \underbrace{(2x - 1)}_{\substack{a \\ b}}^2 = (2x)^2 - \underline{2 \cdot 2x \cdot 1} + 1^2 = \underline{4x^2 - 4x + 1}$$

$$(x+2)^3 = x^3 + \underline{3 \cdot x^2 \cdot 2} + \underline{3 \cdot x \cdot 2^2} + 2^3 = \underline{x^3 + 6x^2 + 12x + 8}$$

$$b) \quad \underline{(x-3)^2} + 2 \cdot \underline{(x-2) \cdot (x+2)} - \underline{5x \cdot (x-3)} - 1 =$$

$$x^2 - \underline{2 \cdot x \cdot 3} + \underline{3^2} + 2 \cdot \underline{(x^2 + 2x - 2x - 4)} - 5x^2 + 15x - 1 =$$

$$\underline{x^2 - 6x + 9} + \underline{2x^2 + 4x - 4x - 8} - \underline{5x^2 + 15x - 1} =$$

$$\underline{-2x^2 + 9x - 9} = \underline{X \cdot (-2x + 9)}$$

$$\underline{-2xx + 9x = X(-2x + 9)}$$

$$c) (2x-1)^2 - 2 \cdot (x-4) + (x-3) \cdot (x+3) =$$

$$(2x)^2 - 2 \cdot 2x \cdot 1 + 1^2 - 2x + 8 + x^2 + 3x - 3x - 9 =$$

$$\underline{4x^2 - 4x + 1 - 2x + 8 + x^2 + 3x - 3x - 9} =$$

$$5x^2 - 6x = \underline{\underline{x(5x - 6)}}$$

$$5x \otimes - 6 \otimes$$

RAZSTAVI

1.) $a^2 - b^2 = (a - b)(a + b)$

RAZLIKA
KVADRATOV

$$x^2 - 9 = (x - 3)(x + 3)$$

$\underset{3^2}{\parallel}$

$$x^2 - 36 = (x - 6)(x + 6)$$

$\underset{6^2}{\parallel}$

$$x^2 - 5 = (x - \sqrt{5})(x + \sqrt{5})$$

$$x^2 + 16 = \text{}$$

2.) VIETOVO PRAVILO

$$x^2 - 5x + 4 = (x - 1)(x - 4)$$

$$x^2 + 5x + 6 = (x + 3)(x + 2)$$

$$x^2 - 7x + 10 = (x - 2)(x - 5)$$

$$x^2 - 16x + 60 = (x - 10)(x - 6)$$

$$\begin{array}{r|l} 60 & -16 \\ -10 \cdot (-6) & -10 - 6 = -16 \end{array}$$

• +	
4 -5	
2 · 2	2 + 2 = 4
1 · 4	1 + 4 = 5
-2 · (-2)	-2 - 2 = -4
-1 · (-4)	-1 - 4 = -5 ✓
6 5	
3 · 2	3 + 2 = 5 ✓
10 -7	
2 · 5	2 + 5 = 7
-2 · (-5)	-2 - 5 = -7 ✓

$$(4x+5) \cdot (2x-7) - 2 \cdot (x+5)(3x-2) + 4 \cdot (8x-10) + 1 =$$

$$8x^2 - 28x + 10x - 35 - 2 \cdot (3x^2 - 2x + 15x - 10) + 32x - 40 + 1 =$$

$$8x^2 - 28x + 10x - 35 - 6x^2 + 4x - 30x + 20 + 32x - 40 + 1 =$$

$$2x^2 - 12x - 54 = 2(x^2 - 6x - 27) =$$

$$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 2 \cdot 1 & 2 \cdot 6 & 2 \cdot 27 \end{matrix}$$

$$2(x-9)(x+3)$$

$$2(x+3)(x-9)$$

$$\begin{array}{r|l} -27 & -6 \\ -9 \cdot 3 & -9+3 = -6 \end{array}$$

$$(x+5)^2 - 3x \cdot (x-6) + 2 \cdot (x-2) \cdot (x+2) - 3 =$$

$$x^2 + 2 \cdot x \cdot 5 + 5^2 - 3x^2 + 18x + 2(x^2 + 2x - 2x - 4) - 3 =$$

$$x^2 + 10x + 25 - 3x^2 + 18x + 2x^2 + 4x - 4x - 8 - 3 =$$

$$28x + 14 = 14(2x + 1)$$

$$14 \cdot 2x + 14 \cdot 1$$

POTENCE IN KAREN

$$a^n \cdot a^m = a^{n+m}$$

$$a^6 \cdot a^{10} = a^{16}$$

$$a^n : a^m = a^{n-m}$$

$$a^7 : a^4 = a^3$$

$$(a^n)^m = a^{n \cdot m}$$

$$(a^4)^3 = a^{12}$$

$$a^0 = 1$$

$$5^0 = 1 \quad 2^0 = 1 \quad (x+7)^0 = 1$$

$$a^{-n} = \frac{1}{a^n}$$

$$a^{-3} = \frac{1}{a^3} \quad \left(\frac{a}{b}\right)^{-2} = \left(\frac{b}{a}\right)^2$$

$$a^{\frac{n}{m}} = \sqrt[m]{a^n}$$

$$8^{\frac{2}{3}} = \sqrt[3]{8^2} = \underline{4}$$

$$\left(\frac{a}{b}\right)^2 = \frac{a^2}{b^2}$$

$$27^{\frac{2}{3}} - 16^{\frac{3}{4}} = \sqrt[3]{27^2} - \sqrt[4]{16^3} = 3^2 - 2^3 = 9 - 8 = \underline{1}$$

$$3^5 = 243$$

$$2 \cdot 2^3 = 2 \cdot 8 = 16$$

$$3 \cdot 3^3 = 3 \cdot 27 = 81$$

$$2 \cdot 5^{-1} - 3 \cdot 2^{-2} = 2 \cdot \frac{1}{5} - 3 \cdot \frac{1}{2^2} = \frac{2}{1} \cdot \frac{1}{5} - \frac{3}{1} \cdot \frac{1}{4} = \frac{2}{5} - \frac{3}{4} = \frac{8}{20} - \frac{15}{20} = \underline{\underline{-\frac{7}{20}}}$$

$$\begin{aligned}
 27^{-\frac{1}{3}} - 3^2 + 10 \cdot 2^0 &= \\
 \sqrt[3]{27^{-1}} - 9 + 10 \cdot 1 &= \\
 = 3^{-1} - 9 + 10 &= \\
 = \frac{1}{3} + 1 &= \frac{1}{3} + \frac{3}{3} = \frac{4}{3} = 1\frac{1}{3}
 \end{aligned}$$

$$4:3 = 1 \text{ ost } 1$$

$$\frac{200}{15} = 13\frac{5}{15}$$

$$\begin{array}{r} 200 : 15 = \underline{\underline{13}} \\ \underline{50} \\ 50 \text{ ost} \end{array}$$

$$\sqrt[3]{1 + \sqrt{49}} - \sqrt[3]{-8} =$$

$$\sqrt[3]{1 + 7} - (-2) = \sqrt[3]{8} + 2 = 2 + 2 = \underline{\underline{4}}$$

DELNO KORENJE

4, 9, 16, 25, 36, 49, 64, 81, 100

$$\sqrt{20} = \sqrt{4 \cdot 5} = \underline{\underline{2\sqrt{5}}}$$

$$\sqrt{50} - 3 \cdot \sqrt{32} + 5 \cdot \sqrt{18} =$$

$$\sqrt{25 \cdot 2} - 3 \sqrt{16 \cdot 2} + 5 \cdot \sqrt{9 \cdot 2} =$$

$$5\sqrt{2} - 3 \cdot 4\sqrt{2} + 5 \cdot 3\sqrt{2} =$$

$$5\sqrt{2} - 12\sqrt{2} + 15\sqrt{2} = \underline{\underline{38\sqrt{2}}}$$