

**** MLADEN SRAGA ****

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UNIVERZALNA ZBIRKA
POTPUNO RIJEŠENIH ZADATAKA

PRIRUČNIK ZA SAMOSTALNO UČENJE

MATEMATIKA

1

ALGEBARSKI IZRAZI

KVADRAT ZBROJA

KVADRAT RAZLIKE

M.I.M.-SRAGA
 $\sqrt{\alpha}$

34. Koristeći se formulama za: kvadrat zbroja i kvadrat razlike

$$(A+B)^2 = A^2 + 2AB + B^2 \quad (A-B)^2 = A^2 - 2AB + B^2$$

izračunaj:

- | | | | |
|--|--|--|--|
| 1) $(x+y)^2$ | 2) $(y+x)^2$ | 3) $(x-y)^2$ | 4) $(y-x)^2$ |
| 5) $(x+3)^2$ | 6) $(x-5)^2$ | 7) $(2-x)^2$ | 8) $(2+x)^2$ |
| 9) $(x-1)^2$ | 10) $(x-4)^2$ | 11) $(a-2)^2$ | 12) $(3-b)^2$ |
| 13) $(y-5)^2$ | 14) $(x+6)^2$ | 15) $(7-x)^2$ | 16) $(8+y)^2$ |
| 17) $(2+z)^2$ | 18) $(z-2)^2$ | 19) $(x+5y)^2$ | 20) $(5x-y)^2$ |
| 21) $(7x+y)^2$ | 22) $(x-3y)^2$ | 23) $(3x+2)^2$ | 24) $(2x+5)^2$ |
| 25) $(2a-5b)^2$ | 26) $(2x+3y)^2$ | 27) $(5x+2y)^2$ | 28) $(3x+4y)^2$ |
| 29) $(3x-4y)^2$ | 30) $(5a+7b)^2$ | 31) $(3m+n)^2$ | 32) $(2m-5n)^2$ |
| 33) $(0,2x+3)^2$ | 34) $(1,2x+0,3)^2$ | 35) $(0,5x-2y)^2$ | 36) $(0,2m+0,3n)^2$ |
| 37) $\left(x+\frac{1}{2}\right)^2$ | 38) $\left(\frac{3}{2}x+1\right)^2$ | 39) $\left(\frac{3}{4}x+\frac{2}{3}y\right)^2$ | 40) $\left(0,4x-\frac{5}{3}y\right)^2$ |
| 41) $\left(\frac{5}{2}x+0,2y\right)^2$ | 42) $\left(4x-\frac{3}{2}y\right)^2$ | 43) $\left(\frac{1}{2}x+\frac{2}{3}y^3\right)^2$ | 44) $\left(\frac{2}{3}x^3-\frac{3}{4}y^4\right)^2$ |
| 45) $\left(1\frac{1}{2}x+y\right)^2$ | 46) $\left(2\frac{2}{3}x-1\frac{1}{4}y\right)^2$ | 47) $\left(3\frac{2}{3}x-0,5y\right)^2$ | 48) $\left(\frac{1}{4}xz-\frac{3}{2}y\right)^2$ |
| 49) $(x^2+1)^2$ | 50) $(x^2-2)^2$ | 51) $(3-x^4)^2$ | 52) $(3a^2-b^3)^2$ |
| 53) $(2a^3-b^2)^2$ | 54) $(a^3-5b^2)^2$ | 55) $(2x^3+3y^3)^2$ | 56) $(3x^4+7y^5)^2$ |
| 57) $(2x^2y^3-3z^2)^2$ | 58) $(2ab+3c)^2$ | 59) $(a^2b+c^3)^2$ | 60) $(2ab^2-3c^4)^2$ |
| 61) $(a^2b^3-c^2d^4)^2$ | 62) $(a^2b^3-c^2)^2$ | 63) $(a^3b-3c^4)^2$ | 64) $(a^2b^3+4c^5)^2$ |
| 65) $(2a^4b^3-3a^2b^7)^2$ | 66) $(4a^3b-5a^2b^3)^2$ | 67) $(9a^4b^3-2a^2b^4)^2$ | 68) $\left(\frac{1}{2}a^2b-\frac{2}{3}a^4b^3\right)^2$ |
| 69) $(5x-6y)^{-2}$ | 70) $(x+4y)^{-2}$ | 71) $(-x-3)^2$ | 72) $(-x-2y)^2$ |
| 73) $(-2a-3b)^2$ | 74) $(-x-4y)^2$ | 75) $\left(-\frac{1}{2}x-4y^2\right)^2$ | 76) $(-a+7b)^2$ |
| 77) $(-3x+y)^2$ | 78) $(-5a^2b^3+2c^4)^2$ | 79) $(-2x^2y^3+3z^4)^2$ | 80) $(-2^m+2^n)^2$ |
| 81) $(2^m+3^n)^2$ | 82) $(3^m-5^m)^2$ | 83) $(2^m+2^n)^2$ | 84) $(2^m+2^{m-1})^2$ |
| 85) $(3^m-3^n)^2$ | 86) $(2^{m+1}+2^{m-1})^2$ | 87) $(2^n+2^{1-n})^2$ | 88) $(2^{n+1}-2^{n-2})^2$ |
| 89) $(a^n+a^{n+1})^2$ | 90) $(a^{n-1}-a^{n+1})^2$ | 91) $(2a^x-3b^x)^2$ | 92) $(2a^x+3b^y)^2$ |

34. Kvadriramo po pravilu: $(A+B)^2 = A^2 + 2 \cdot A \cdot B + B^2$ i $(A-B)^2 = A^2 - 2 \cdot A \cdot B + B^2$

To pravilo možemo pisati i ovako: $(I+II)^2 = I^2 + 2 \cdot I \cdot II + II^2$ i $(I-II)^2 = I^2 - 2 \cdot I \cdot II + II^2$

Sve o kvadratu binoma morali bi znati već iz 8. razreda ali ponovimo to još jednom.

Pogledajmo kako to radimo na dva primjera:

a) $(x+1)^2$ b) $(x-1)^2$

a) $(x+1)^2 = x^2 + 2 \cdot x \cdot 1 + 1^2 = x^2 + 2x + 1$

objašnjenje:

$$\begin{array}{ccccccc} (x+1)^2 & = & x^2 & + & 2 \cdot x \cdot 1 & + & 1^2 & = & x^2 & + & 2x & + & 1 \\ \uparrow & \uparrow & \uparrow & & \uparrow & & \uparrow & & \uparrow & & \uparrow & & \uparrow \\ (A+B)^2 & = & A^2 & + & 2 \cdot A \cdot B & + & B^2 \end{array}$$

ili

$$\begin{array}{ccccccc} (x+1)^2 & = & x^2 & + & 2 \cdot x \cdot 1 & + & 1^2 & = & x^2 & + & 2x & + & 1 \\ \uparrow & \uparrow & \uparrow & & \uparrow & & \uparrow & & \uparrow & & \uparrow & & \uparrow \\ (I+II)^2 & = & I^2 & + & 2 \cdot I \cdot II & + & II^2 \end{array}$$

↓ ovo pravilo čitamo ovako:

Prvi plus drugi na kvadrat

jednako je prvi na kvadrat, plus dvostruki prvi puta drugi, plus drugi na kvadrat.

b) $(x-1)^2 = x^2 - 2 \cdot x \cdot 1 + 1^2 = x^2 - 2x + 1$

objašnjenje:

$$\begin{array}{ccccccc} (x-1)^2 & = & x^2 & - & 2 \cdot x \cdot 1 & + & 1^2 & = & x^2 & - & 2x & + & 1 \\ \uparrow & \uparrow & \uparrow & & \uparrow & & \uparrow & & \uparrow & & \uparrow & & \uparrow \\ (A-B)^2 & = & A^2 & - & 2 \cdot A \cdot B & + & B^2 \end{array}$$

ili

$$\begin{array}{ccccccc} (x-1)^2 & = & x^2 & - & 2 \cdot x \cdot 1 & + & 1^2 & = & x^2 & - & 2x & + & 1 \\ \uparrow & \uparrow & \uparrow & & \uparrow & & \uparrow & & \uparrow & & \uparrow & & \uparrow \\ (I-II)^2 & = & I^2 & - & 2 \cdot I \cdot II & + & II^2 \end{array}$$

1) $(x+y)^2 = x^2 + 2xy + y^2$

2) $(y+x)^2 = y^2 + 2 \cdot y \cdot x + x^2 = x^2 + 2xy + y^2$

3) $(x-y)^2 = x^2 - 2xy + y^2$

4) $(y-x)^2 = y^2 - 2 \cdot y \cdot x + x^2 = x^2 + 2xy + y^2$

5) $(x+3)^2 = x^2 + 2 \cdot x \cdot 3 + 3^2 =$
 $= x^2 + 6x + 9$

34. Kvadriramo po pravilu: $(A+B)^2 = A^2 + 2 \cdot A \cdot B + B^2$ i $(A-B)^2 = A^2 - 2 \cdot A \cdot B + B^2$

To pravilo možemo pisati i ovako: $(I+II)^2 = I^2 + 2 \cdot I \cdot II + II^2$ i $(I-II)^2 = I^2 - 2 \cdot I \cdot II + II^2$

$$\begin{aligned} 6) \quad (x-5)^2 &= x^2 - 2 \cdot x \cdot 5 + 5^2 = \\ &= x^2 - 10x + 25 \end{aligned}$$

$$\begin{aligned} 7) \quad (2-x)^2 &= 2^2 - 2 \cdot 2 \cdot x + x^2 = \\ &= 4 - 4x + x^2 \quad \rightarrow \text{to možemo pisati i dalje: } = x^2 - 4x + 4 \end{aligned}$$

$$\begin{aligned} 8) \quad (2+x)^2 &= 2^2 + 2 \cdot 2 \cdot x + x^2 = \\ &= 4 + 4x + x^2 \quad = x^2 + 4x + 4 \quad \text{dobro je kako god napišete ...} \end{aligned}$$

$$\begin{aligned} 9) \quad (x-1)^2 &= x^2 - 2 \cdot x \cdot 1 + 1^2 = \\ &= x^2 - 2x + 1 \end{aligned}$$

$$\begin{aligned} 10) \quad (x-4)^2 &= x^2 - 2 \cdot x \cdot 4 + 4^2 = \\ &= x^2 - 8x + 16 \end{aligned}$$

$$\begin{aligned} 11) \quad (a-2)^2 &= a^2 - 2 \cdot a \cdot 2 + 2^2 = \\ &= a^2 - 4a + 4 \end{aligned}$$

$$\begin{aligned} 12) \quad (3-b)^2 &= 3^2 - 2 \cdot 3 \cdot b + b^2 = \\ &= 9 - 6b + b^2 \end{aligned}$$

$$\begin{aligned} 13) \quad (y-5)^2 &= y^2 - 2 \cdot y \cdot 5 + 5^2 = \\ &= y^2 - 10y + 25 \end{aligned}$$

$$\begin{aligned} 14) \quad (x+6)^2 &= x^2 + 2 \cdot x \cdot 6 + 6^2 = \\ &= x^2 + 12x + 36 \end{aligned}$$

$$\begin{aligned} 15) \quad (7-x)^2 &= 7^2 - 2 \cdot 7 \cdot x + x^2 = \\ &= 49 - 14x + x^2 \end{aligned}$$

$$\begin{aligned} 16) \quad (8+y)^2 &= 8^2 + 2 \cdot 8 \cdot y + y^2 = \\ &= 64 + 16y + y^2 \end{aligned}$$

34. Kvadriramo po pravilu: $(A+B)^2 = A^2 + 2 \cdot A \cdot B + B^2$ i $(A-B)^2 = A^2 - 2 \cdot A \cdot B + B^2$

To pravilo možemo pisati i ovako: $(I+II)^2 = I^2 + 2 \cdot I \cdot II + II^2$ i $(I-II)^2 = I^2 - 2 \cdot I \cdot II + II^2$

$$\begin{aligned} 17) \quad (2+z)^2 &= 2^2 + 2 \cdot 2 \cdot z + z^2 = \\ &= 4 + 4z + z^2 \end{aligned}$$

$$\begin{aligned} 18) \quad (z-2)^2 &= z^2 - 2 \cdot z \cdot 2 + 2^2 = \\ &= z^2 - 4z + 4 \end{aligned}$$

$$\begin{aligned} 19) \quad (x+5y)^2 &= x^2 + 2 \cdot x \cdot 5y + (5y)^2 = \\ &= x^2 + 10xy + 5^2 y^2 = \\ &= x^2 + 10xy + 25y^2 \end{aligned}$$

Još jednom isti zadatak:

$$19) \quad (x+5y)^2 = x^2 + 2 \cdot x \cdot 5y + (5y)^2 = x^2 + 10xy + 5^2 y^2 = x^2 + 10xy + 25y^2$$

$$\updownarrow$$

Primjeni pravilo: $(ab)^n = a^n b^n$ u našem slučaju: $(5y)^2 = 5^2 y^2 = 25y^2$

\updownarrow i ovdje

$$20) \quad (5x-y)^2 = (5x)^2 - 2 \cdot 5x \cdot y + y^2 = 5^2 x^2 - 10xy + y^2 = 25x^2 - 10xy + y^2$$

ili možemo pisati i ovako:

$$\begin{aligned} (5x-y)^2 &= (5x)^2 - 2 \cdot 5x \cdot y + y^2 = \\ &= 5^2 x^2 - 10xy + y^2 = \\ &= 25x^2 - 10xy + y^2 \end{aligned}$$

$$\begin{aligned} 21) \quad (7x+y)^2 &= (7x)^2 + 2 \cdot 7x \cdot y + y^2 = \\ &= 7^2 x^2 + 14xy + y^2 = \\ &= 49x^2 + 14xy + y^2 \end{aligned}$$

$$\begin{aligned} 22) \quad (x-3y)^2 &= x^2 - 2 \cdot x \cdot 3y + (3y)^2 = \\ &= x^2 - 6xy + 3^2 y^2 = \\ &= x^2 - 6xy + 9y^2 \end{aligned}$$

34. Kvadriramo po pravilu: $(A+B)^2 = A^2 + 2 \cdot A \cdot B + B^2$ i $(A-B)^2 = A^2 - 2 \cdot A \cdot B + B^2$

To pravilo možemo pisati i ovako: $(I+II)^2 = I^2 + 2 \cdot I \cdot II + II^2$ i $(I-II)^2 = I^2 - 2 \cdot I \cdot II + II^2$

$$\begin{aligned} 23) \quad (3x+2)^2 &= (3x)^2 + 2 \cdot 3x \cdot 2 + 2^2 = \\ &= 3^2 x^2 + 12x + 4 = \\ &= 9x^2 + 12x + 4 \end{aligned}$$

$$\begin{aligned} 24) \quad (2x+5)^2 &= (2x)^2 + 2 \cdot 2x \cdot 5 + 5^2 = \\ &= 2^2 x^2 + 20x + 25 = \\ &= 4x^2 + 20x + 25 \end{aligned}$$

Sve ove zadatke možemo rješavati u jednom redu ali tada je teško pisati upute, kada svaki korak pišem u novi red tada desno od zadatka ima mjesta za uputu.

$$25) \quad (2a-5b)^2 = (2a)^2 - 2 \cdot 2a \cdot 5b + (5b)^2 = 2^2 a^2 - 20ab + 5^2 b^2 = 4a^2 - 20ab + 25b^2$$

$$\begin{aligned} \text{Još jednom isti zadatak: } (2a-5b)^2 &= (2a)^2 - 2 \cdot 2a \cdot 5b + (5b)^2 = \quad \text{Primjeni: } (ab)^n = a^n b^n \\ &= 2^2 a^2 - 20ab + 5^2 b^2 = \\ &= 4a^2 - 20ab + 25b^2 \end{aligned}$$

$$\begin{aligned} 26) \quad (2x+3y)^2 &= (2x)^2 + 2 \cdot 2x \cdot 3y + (3y)^2 = \\ &= 2^2 x^2 + 12xy + 3^2 y^2 = \\ &= 4x^2 + 12xy + 9y^2 \end{aligned}$$

$$\begin{aligned} 27) \quad (5x+2y)^2 &= (5x)^2 + 2 \cdot 5x \cdot 2y + (2y)^2 = \\ &= 5^2 x^2 + 20xy + 2^2 y^2 = \\ &= 25x^2 + 20xy + 4y^2 \end{aligned}$$

$$\begin{aligned} 28) \quad (3x+4y)^2 &= (3x)^2 + 2 \cdot 3x \cdot 4y + (4y)^2 = \\ &= 3^2 x^2 + 24xy + 4^2 y^2 = \\ &= 9x^2 + 24xy + 16y^2 \end{aligned}$$

34. Kvadriramo po pravilu: $(A+B)^2 = A^2 + 2 \cdot A \cdot B + B^2$ i $(A-B)^2 = A^2 - 2 \cdot A \cdot B + B^2$

To pravilo možemo pisati i ovako: $(I+II)^2 = I^2 + 2 \cdot I \cdot II + II^2$ i $(I-II)^2 = I^2 - 2 \cdot I \cdot II + II^2$

$$\begin{aligned} 29) \quad (3x-4y)^2 &= (3x)^2 - 2 \cdot 3x \cdot 4y + (4y)^2 = \\ &= 3^2 x^2 - 24xy + 4^2 y^2 = \\ &= 9x^2 - 24xy + 16y^2 \end{aligned}$$

$$\begin{aligned} 30) \quad (5a+7b)^2 &= (5a)^2 + 2 \cdot 5a \cdot 7b + (7b)^2 = \\ &= 5^2 a^2 + 70ab + 7^2 b^2 = \\ &= 25a^2 + 70ab + 49b^2 \end{aligned}$$

$$\begin{aligned} 31) \quad (3m+n)^2 &= (3m)^2 + 2 \cdot 3m \cdot n + n^2 = \\ &= 3^2 m^2 + 6mn + n^2 = \\ &= 9m^2 + 6mn + n^2 \end{aligned}$$

$$\begin{aligned} 32) \quad (2m-5n)^2 &= (2m)^2 - 2 \cdot 2m \cdot 5n + (5n)^2 = \\ &= 2^2 m^2 - 20mn + 5^2 n^2 = \\ &= 4m^2 - 20mn + 25n^2 \end{aligned}$$

$$\begin{aligned} 33) \quad (0,2x+3)^2 &= (0,2x)^2 + 2 \cdot 0,2 \cdot x \cdot 3 + 3^2 = 0,2^2 x^2 + 1,2x + 9 = 0,04x^2 + 1,2x + 9 \\ &\qquad\qquad\qquad \downarrow \qquad\qquad\qquad \downarrow \\ &\qquad\qquad\qquad 2 \cdot 0,2 \cdot 3 = 1,2 \qquad\qquad\qquad 0,2^2 = 0,2 \cdot 0,2 = 0,04 \end{aligned}$$

Još jednom taj isti zadatak:

$$\begin{aligned} 33) \quad (0,2x+3)^2 &= (0,2x)^2 + 2 \cdot 0,2 \cdot x \cdot 3 + 3^2 = \\ &= 0,2^2 x^2 + 1,2x + 9 = \\ &= 0,04x^2 + 1,2x + 9 \end{aligned}$$

Uputa:

$$\begin{aligned} &\rightarrow \quad | \quad 2 \cdot 0,2 \cdot 3 = 1,2 \\ &\rightarrow \quad 0,2^2 = 0,2 \cdot 0,2 = 0,04 \end{aligned}$$

$$\begin{aligned} 34) \quad (1,2x+0,3)^2 &= (1,2x)^2 + 2 \cdot 1,2x \cdot 0,3 + 0,3^2 = \\ &= 1,2^2 x^2 + 2 \cdot 1,2 \cdot 0,3 \cdot x + 0,09 = \\ &= 1,44x^2 + 0,72x + 0,09 \end{aligned}$$

$$\begin{aligned} &\rightarrow \quad | \quad 2 \cdot 1,2 \cdot 0,3 = 0,72 \\ &\rightarrow \quad 1,2^2 = 1,2 \cdot 1,2 = 1,44 \end{aligned}$$

34. Kvadriramo po pravilu: $(A+B)^2 = A^2 + 2 \cdot A \cdot B + B^2$ i $(A-B)^2 = A^2 - 2 \cdot A \cdot B + B^2$

To pravilo možemo pisati i ovako: $(I+II)^2 = I^2 + 2 \cdot I \cdot II + II^2$ i $(I-II)^2 = I^2 - 2 \cdot I \cdot II + II^2$

$$\begin{aligned} 35) \quad (0,5x - 2y)^2 &= (0,5x)^2 - 2 \cdot 0,5 \cdot x \cdot 2 \cdot y + (2y)^2 = \\ &= 0,5^2 x^2 - 2x + 2^2 y^2 = \\ &= 0,25x^2 - 2x + 4y^2 \end{aligned}$$

$$\begin{aligned} 36) \quad (0,2m + 0,3n)^2 &= (0,2m)^2 + 2 \cdot 0,2 \cdot m \cdot 0,3 \cdot n + (0,3n)^2 = \\ &= 0,2^2 m^2 + 0,12mn + 0,3^2 n^2 = \\ &= 0,04m^2 + 0,12mn + 0,09n^2 \end{aligned}$$

$$\begin{aligned} 37) \quad \left(x + \frac{1}{2}\right)^2 &= x^2 + 2 \cdot x \cdot \frac{1}{2} + \left(\frac{1}{2}\right)^2 = \\ &= x^2 + 2 \cdot \frac{1}{2} \cdot x + \frac{1^2}{2^2} = \\ &= x^2 + x + \frac{1}{4} \end{aligned}$$

$$\begin{aligned} 38) \quad \left(\frac{3}{2}x + 1\right)^2 &= \left(\frac{3}{2}x\right)^2 + 2 \cdot \frac{3}{2} \cdot x \cdot 1 + 1^2 = \\ &= \frac{3^2}{2^2} x^2 + 3x + 1 = \\ &= \frac{9}{4} x^2 + 3x + 1 \end{aligned}$$

$$\begin{aligned} 39) \quad \left(\frac{3}{4}x + \frac{2}{3}y\right)^2 &= \left(\frac{3}{4}x\right)^2 + 2 \cdot \frac{3}{4} \cdot x \cdot \frac{2}{3} \cdot y + \left(\frac{2}{3}y\right)^2 = \\ &= \frac{3^2}{4^2} x^2 + 2 \cdot \frac{3}{4} \cdot \frac{2}{3} \cdot x \cdot y + \frac{2^2}{3^2} y^2 = \rightarrow \text{drugi član} \cdot 2 \cdot \frac{3}{4} \cdot \frac{2}{3} \cdot xy = \frac{2 \cdot 3 \cdot 2}{4 \cdot 3} xy = 1xy \\ &= \frac{9}{16} x^2 + xy + \frac{4}{9} y^2 \end{aligned}$$

34. Kvadriramo po pravilu: $(A+B)^2 = A^2 + 2 \cdot A \cdot B + B^2$ i $(A-B)^2 = A^2 - 2 \cdot A \cdot B + B^2$

$$\begin{aligned}
 40) \quad \left(0,4x - \frac{5}{3}y\right)^2 &= (0,4x)^2 - 2 \cdot 0,4 \cdot x \cdot \frac{5}{3} \cdot y + \left(\frac{5}{3}y\right)^2 = \\
 &= 0,4^2 x^2 - 2 \cdot \frac{4}{10} \cdot \frac{5}{3} \cdot x \cdot y + \frac{5^2}{3^2} y^2 = \\
 &= 0,16x^2 - \frac{4}{3}xy + \frac{25}{9}y^2 = \\
 &= \frac{16}{100}x^2 - \frac{4}{3}xy + \frac{25}{9}y^2 = \\
 &= \frac{4}{25}x^2 - \frac{4}{3}xy + \frac{25}{9}y^2
 \end{aligned}$$

Možemo rješenje ostaviti u ovom obliku

ili decimalni broj $0,16 = \frac{16}{100} = \frac{4}{25}$

pretvoriti u razlomak....

$$\begin{aligned}
 41) \quad \left(\frac{5}{2}x + 0,2y\right)^2 &= \left(\frac{5}{2}x\right)^2 + 2 \cdot \frac{5}{2} \cdot x \cdot 0,2 \cdot y + (0,2y)^2 = && \rightarrow 2 \cdot \frac{5}{2} \cdot 0,2 = 5 \cdot 0,2 = 1 \\
 &= \frac{5^2}{2^2}x^2 + 1 \cdot xy + 0,2^2 y^2 = \\
 &= \frac{25}{4}x^2 + xy + 0,04y^2
 \end{aligned}$$

$$\begin{aligned}
 \text{ili taj zadatak na drugi način: } \left(\frac{5}{2}x + 0,2y\right)^2 &= \left(\frac{5}{2}x\right)^2 + 2 \cdot \frac{5}{2} \cdot x \cdot \frac{2}{10} \cdot y + \left(\frac{2}{10}y\right)^2 = \\
 &= \frac{5^2}{2^2}x^2 + 2 \cdot \frac{5}{2} \cdot \frac{1}{5} \cdot x \cdot y + \left(\frac{1}{5}y\right)^2 = \\
 &= \frac{25}{4}x^2 + xy + \frac{1}{25}y^2
 \end{aligned}$$

Vidimo da su obadva rješenja ista jer je: $0,04 = \frac{4}{100} = \frac{1}{25}$ pa sada kako je kome lakše računat obadva načina su ispravna...

$$\begin{aligned}
 42) \quad \left(4x - \frac{3}{2}y\right)^2 &= (4x)^2 - 2 \cdot 4x \cdot \frac{3}{2}y + \left(\frac{3}{2}y\right)^2 = \\
 &= 4^2 x^2 - 2 \cdot 4 \cdot \frac{3}{2} \cdot x \cdot y + \frac{3^2}{2^2} y^2 = \\
 &= 16x^2 - 12xy + \frac{3^2}{2^2} y^2 = \\
 &= 16x^2 - 12xy + \frac{9}{4}y^2
 \end{aligned}$$

34. Kvadriramo po pravilu: $(A+B)^2 = A^2 + 2 \cdot A \cdot B + B^2$ i $(A-B)^2 = A^2 - 2 \cdot A \cdot B + B^2$

$$\begin{aligned}
 43) \quad \left(\frac{1}{2}x + \frac{2}{3}y^3\right)^2 &= \left(\frac{1}{2}x\right)^2 + 2 \cdot \frac{1}{2} \cdot x \cdot \frac{2}{3} \cdot y^3 + \left(\frac{2}{3}y^3\right)^2 = \\
 &= \frac{1^2}{2^2}x^2 + \frac{2}{3}xy^3 + \frac{2^2}{3^2}(y^3)^2 = \quad \rightarrow (y^3)^2 = y^{3 \cdot 2} = y^6 \\
 &= \frac{1}{4}x^2 + \frac{2}{3}xy^3 + \frac{4}{9}y^6
 \end{aligned}$$

$$\begin{aligned}
 44) \quad \left(\frac{2}{3}x^3 - \frac{3}{4}y^4\right)^2 &= \left(\frac{2}{3}x^3\right)^2 - 2 \cdot \frac{2}{3}x^3 \cdot \frac{3}{4}y^4 + \left(\frac{3}{4}y^4\right)^2 = \\
 &= \frac{2^2}{3^2}(x^3)^2 - 2 \cdot \frac{2}{3} \cdot \frac{3}{4} \cdot x^3 \cdot y^4 + \frac{3^2}{4^2}(y^4)^2 = \quad \rightarrow 2 \cdot \frac{2}{3} \cdot \frac{3}{4} = \frac{2 \cdot 2 \cdot 3}{3 \cdot 4} = 1 \\
 &= \frac{4}{9}x^{3 \cdot 2} - 1 \cdot x^3y^4 + \frac{9}{16}y^{4 \cdot 2} = \\
 &= \frac{4}{9}x^6 - x^3y^4 + \frac{9}{16}y^8
 \end{aligned}$$

$$\begin{aligned}
 45) \quad \left(1\frac{1}{2}x + y\right)^2 &= \text{Odmah treba mješoviti broj: } 1\frac{1}{2} \text{ pretvoriti u razlomak pa tek tada kvadrirati:} \\
 \left(1\frac{1}{2}x + y\right)^2 &= \left(\frac{3}{2}x + y\right)^2 = \left(\frac{3}{2}x\right)^2 + 2 \cdot \frac{3}{2}x \cdot y + y^2 = \quad \rightarrow 1\frac{1}{2} = \frac{1 \cdot 2 + 1}{2} = \frac{3}{2} \\
 &= \frac{3^2}{2^2}x^2 + xy + y^2
 \end{aligned}$$

$$\begin{aligned}
 46) \quad \left(2\frac{2}{3}x - 1\frac{1}{4}y\right)^2 &= \left(\frac{2 \cdot 3 + 2}{3}x - \frac{1 \cdot 4 + 1}{4}y\right)^2 = \text{Odmah treba mješoviti broj pretvoriti u razlomak} \\
 &= \left(\frac{8}{3}x - \frac{5}{4}y\right)^2 = \quad \rightarrow \text{pa tek tada kvadrirati} \\
 &= \left(\frac{8}{3}x\right)^2 - 2 \cdot \frac{8}{3}x \cdot \frac{5}{4}y + \left(\frac{5}{4}y\right)^2 = \\
 &= \frac{8^2}{3^2}x^2 - \frac{8 \cdot 5}{3 \cdot 2} \cdot x \cdot y + \frac{5^2}{4^2}y^2 = \\
 &= \frac{64}{9}x^2 - \frac{40}{6}xy + \frac{25}{16}y^2
 \end{aligned}$$

34. Kvadriramo po pravilu: $(A+B)^2 = A^2 + 2 \cdot A \cdot B + B^2$ i $(A-B)^2 = A^2 - 2 \cdot A \cdot B + B^2$

$$\begin{aligned}
 47) \quad \left(3\frac{2}{3}x - 0,5y\right)^2 &= \left(\frac{3 \cdot 3 + 2}{3}x - \frac{5}{10}y\right)^2 = \left(\frac{11}{3}x - \frac{1}{2}y\right)^2 = \\
 &= \left(\frac{11}{3}x\right)^2 - 2 \cdot \frac{11}{3} \cdot x \cdot \frac{1}{2} \cdot y + \left(\frac{1}{2}y\right)^2 = \\
 &= \frac{11^2}{3^2}x^2 - \frac{11}{3}xy + \frac{1^2}{2^2}y^2 = \\
 &= \frac{121}{9}x^2 - \frac{11}{3}xy + \frac{1}{4}y^2
 \end{aligned}$$

$$\begin{aligned}
 48) \quad \left(\frac{1}{4}xz - \frac{3}{2}y\right)^2 &= \left(\frac{1}{4}xz\right)^2 - 2 \cdot \frac{1}{4} \cdot x \cdot z \cdot \frac{3}{2} \cdot y + \left(\frac{3}{2}y\right)^2 = \\
 &= \frac{1^2}{4^2}x^2z^2 - 2 \cdot \frac{1}{4} \cdot \frac{3}{2} \cdot x \cdot z \cdot y + \frac{3^2}{2^2}y^2 = \\
 &= \frac{1}{16}x^2z^2 - \frac{3}{4}xzy + \frac{9}{4}y^2
 \end{aligned}$$

$$\begin{aligned}
 49) \quad (x^2 + 1)^2 &= (x^2)^2 + 2 \cdot x^2 \cdot 1 + 1^2 = && \rightarrow (x^2)^2 = x^{2 \cdot 2} = x^4 \text{ po pravilu: } (a^n)^m = a^{n \cdot m} \\
 &= x^{2 \cdot 2} + 2x^2 + 1 = \\
 &= x^4 + 2x^2 + 1
 \end{aligned}$$

$$\begin{aligned}
 50) \quad (x^2 - 2)^2 &= (x^2)^2 - 2 \cdot x^2 \cdot 2 + 2^2 = \\
 &= x^{2 \cdot 2} - 4x^2 + 4 = \\
 &= x^4 - 4x^2 + 4
 \end{aligned}$$

$$\begin{aligned}
 51) \quad (3 - x^4)^2 &= 3^2 - 2 \cdot 3 \cdot x^4 + (x^4)^2 = \\
 &= 9 - 6x^4 + x^{4 \cdot 2} = \\
 &= 9 - 6x^4 + x^8
 \end{aligned}$$

34. Kvadriramo po pravilu: $(A+B)^2 = A^2 + 2 \cdot A \cdot B + B^2$ i $(A-B)^2 = A^2 - 2 \cdot A \cdot B + B^2$

$$\begin{aligned} 52) \quad (3a^2 - b^3)^2 &= (3a^2)^2 - 2 \cdot 3 \cdot a^2 \cdot b^3 + (b^3)^2 = \\ &= 3^2 (a^2)^2 - 6a^2 b^3 + b^{3 \cdot 2} = \\ &= 9a^{2 \cdot 2} - 6a^2 b^3 + b^6 = 9a^4 - 6a^2 b^3 + b^6 \end{aligned}$$

$$\begin{aligned} 53) \quad (2a^3 - b^2)^2 &= (2a^3)^2 - 2 \cdot 2 \cdot a^3 \cdot b^2 + (b^2)^2 = \\ &= 2^2 (a^3)^2 - 4a^3 b^2 + b^{2 \cdot 2} = \\ &= 4a^{3 \cdot 2} - 4a^3 b^2 + b^4 = \\ &= 4a^6 - 4a^3 b^2 + b^4 \end{aligned}$$

$$\begin{aligned} 54) \quad (a^3 - 5b^2)^2 &= (a^3)^2 - 2 \cdot a^3 \cdot 5 \cdot b^2 + (5b^2)^2 = \\ &= a^{3 \cdot 2} - 10a^3 b^2 + 5^2 (b^2)^2 = \\ &= a^6 - 10a^3 b^2 + 25b^4 \end{aligned}$$

$$\begin{aligned} 55) \quad (2x^3 + 3y^3)^2 &= (2x^3)^2 + 2 \cdot 2 \cdot x^3 \cdot 3 \cdot y^3 + (3y^3)^2 = \\ &= 2^2 (x^3)^2 + 12x^3 y^3 + 3^2 (y^3)^2 = \\ &= 4x^{3 \cdot 2} + 12x^3 y^3 + 9y^{3 \cdot 2} = \\ &= 4x^6 + 12x^3 y^3 + 9y^6 \end{aligned}$$

$$\begin{aligned} 56) \quad (3x^4 + 7y^5)^2 &= (3x^4)^2 + 2 \cdot 3 \cdot x^4 \cdot 7 \cdot y^5 + (7y^5)^2 = \\ &= 3^2 (x^4)^2 + 42x^4 y^5 + 7^2 (y^5)^2 = \\ &= 9x^{4 \cdot 2} + 42x^4 y^5 + 49y^{5 \cdot 2} = \\ &= 9x^8 + 42x^4 y^5 + 49y^{10} \end{aligned}$$

$$\begin{aligned} 57) \quad (2x^2 y^3 - 3z^2)^2 &= (2x^2 y^3)^2 - 2 \cdot 2 \cdot x^2 \cdot y^3 \cdot 3 \cdot z^2 + (3z^2)^2 = \\ &= 2^2 (x^2)^2 (y^3)^2 - 4 \cdot 3 \cdot x^2 \cdot y^3 \cdot z^2 + 3^2 (z^2)^2 = \\ &= 4x^{2 \cdot 2} y^{3 \cdot 2} - 12x^2 y^3 z^2 + 9z^{2 \cdot 2} = \\ &= 4x^4 y^6 - 12x^2 y^3 z^2 + 9z^4 \end{aligned}$$

34. Kvadriramo po pravilu: $(A+B)^2 = A^2 + 2 \cdot A \cdot B + B^2$ i $(A-B)^2 = A^2 - 2 \cdot A \cdot B + B^2$

$$\begin{aligned} 58) \quad (2ab+3c)^2 &= (2ab)^2 + 2 \cdot 2 \cdot a \cdot b \cdot 3 \cdot c + (3c)^2 = \\ &= 2^2 a^2 b^2 + 12abc + 3^2 c^2 = \\ &= 4a^2 b^2 + 12abc + 9c^2 \end{aligned}$$

$$\begin{aligned} 59) \quad (a^2 b + c^3)^2 &= (a^2 b)^2 + 2 \cdot a^2 \cdot b \cdot c^3 + (c^3)^2 = \\ &= (a^2)^2 \cdot b^2 + 2a^2 b c^3 + c^2 = \\ &= a^4 b^2 + 2a^2 b c^3 + c^2 \end{aligned}$$

$$\begin{aligned} 60) \quad (2ab^2 - 3c^4)^2 &= (2ab^2)^2 - 2 \cdot 2 \cdot a \cdot b^2 \cdot 3 \cdot c^4 + (3c^4)^2 = \\ &= 2^2 a^2 (b^2)^2 - 12ab^2 c^4 + 3^2 (c^4)^2 = \\ &= 4a^2 b^{2 \cdot 2} - 12ab^2 c^4 + 9c^{4 \cdot 2} = \\ &= 4a^2 b^4 - 12ab^2 c^4 + 9c^8 \end{aligned}$$

$$\begin{aligned} 61) \quad (a^2 b^3 - c^2 d^4)^2 &= (a^2 b^3)^2 - 2 \cdot a^2 \cdot b^3 \cdot c^2 \cdot d^4 + (c^2 d^4)^2 = \\ &= (a^2)^2 \cdot (b^3)^2 - 2a^2 b^3 c^2 d^4 + (c^2)^2 \cdot (d^4)^2 = \\ &= a^{2 \cdot 2} b^{3 \cdot 2} - 2a^2 b^3 c^2 d^4 + c^{2 \cdot 2} d^{4 \cdot 2} = \\ &= a^4 b^6 - 2a^2 b^3 c^2 d^4 + c^4 d^8 \end{aligned}$$

$$\begin{aligned} 62) \quad (a^2 b^3 - c^2)^2 &= (a^2 b^3)^2 - 2 \cdot a^2 \cdot b^3 \cdot c^2 + (c^2)^2 = \\ &= (a^2)^2 \cdot (b^3)^2 - 2a^2 b^3 c^2 + c^{2 \cdot 2} = \\ &= a^{2 \cdot 2} b^{3 \cdot 2} - 2a^2 b^3 c^2 + c^4 = \\ &= a^4 b^6 - 2a^2 b^3 c^2 + c^4 \end{aligned}$$

$$\begin{aligned} 63) \quad (a^3 b - 3c^4)^2 &= (a^3 b)^2 - 2 \cdot a^3 b \cdot 3 \cdot c^4 + (3c^4)^2 = \\ &= (a^3)^2 \cdot b^2 - 6a^3 b c^4 + 3^2 (c^4)^2 = \\ &= a^{3 \cdot 2} b^2 - 6a^3 b c^4 + 9c^{4 \cdot 2} = \\ &= a^6 b^2 - 6a^3 b c^4 + 9c^8 \end{aligned}$$

$$\begin{aligned} 64) \quad (a^2 b^3 + 4c^5)^2 &= (a^2 b^3)^2 + 2 \cdot a^2 \cdot b^3 \cdot 4 \cdot c^5 + (4c^5)^2 = \\ &= (a^2)^2 \cdot (b^3)^2 + 8a^2 b^3 c^5 + 4^2 (c^5)^2 = \\ &= a^{2 \cdot 2} b^{3 \cdot 2} + 8a^2 b^3 c^5 + 16c^{5 \cdot 2} = \\ &= a^4 b^6 + 8a^2 b^3 c^5 + 16c^{10} \end{aligned}$$

34. Kvadriramo po pravilu: $(A+B)^2 = A^2 + 2 \cdot A \cdot B + B^2$ i $(A-B)^2 = A^2 - 2 \cdot A \cdot B + B^2$

$$\begin{aligned}
 65) \quad (2a^4b^3 - 3a^2b^7)^2 &= (2a^4b^3)^2 - 2 \cdot 2 \cdot a^4 \cdot b^3 \cdot 3 \cdot a^2 \cdot b^7 + (3a^2b^7)^2 = \\
 &= 2^2(a^4)^2 \cdot (b^3)^2 - 12 \cdot a^4 \cdot a^2 \cdot b^3 \cdot b^7 + 3^2(a^2)^2 \cdot (b^7)^2 = \\
 &= 4a^{4 \cdot 2}b^{3 \cdot 2} - 12 \cdot a^{4+2} \cdot b^{3+7} + 9a^{2 \cdot 2}b^{7 \cdot 2} = \\
 &= 4a^8b^6 - 12a^6b^{10} + 9a^4b^{14}
 \end{aligned}$$

$$\begin{aligned}
 66) \quad (4a^3b - 5a^2b^3)^2 &= (4a^3b)^2 - 2 \cdot 4 \cdot a^3 \cdot b \cdot 5 \cdot a^2 \cdot b^3 + (5a^2b^3)^2 = \\
 &= 4^2(a^3)^2 \cdot b^2 - 2 \cdot 4 \cdot 5 \cdot a^3 \cdot a^2 \cdot b^1 \cdot b^3 + 5^2(a^2)^2 \cdot (b^3)^2 = \\
 &= 16a^{3 \cdot 2}b^2 - 40a^{3+2} \cdot b^{1+3} + 25a^{2 \cdot 2}b^{3 \cdot 2} = \\
 &= 16a^6b^2 - 40a^5b^4 + 25a^4b^6
 \end{aligned}$$

$$\begin{aligned}
 67) \quad (9a^4b^3 - 2a^2b^4)^2 &= (9a^4b^3)^2 - 2 \cdot 9 \cdot a^4 \cdot b^3 \cdot 2 \cdot a^2 \cdot b^4 + (2a^2b^4)^2 = \\
 &= 9^2(a^4)^2(b^3)^2 - 2 \cdot 9 \cdot 2 \cdot a^4 \cdot a^2 \cdot b^3 \cdot b^4 + 2^2(a^2)^2(b^4)^2 = \\
 &= 81a^{4 \cdot 2}b^{3 \cdot 2} - 36 \cdot a^{4+2} \cdot b^{3+4} + 4a^{2 \cdot 2}b^{4 \cdot 2} = \\
 &= 81a^8b^6 - 36a^6b^7 + 4a^4b^8
 \end{aligned}$$

$$\begin{aligned}
 68) \quad \left(\frac{1}{2}a^2b - \frac{2}{3}a^4b^3\right)^2 &= \left(\frac{1}{2}a^2b\right)^2 - 2 \cdot \frac{1}{2} \cdot a^2 \cdot b \cdot \frac{2}{3} \cdot a^4 \cdot b^3 + \left(\frac{2}{3}a^4b^3\right)^2 = \\
 &= \frac{1^2}{2^2} \cdot (a^2)^2 \cdot b^2 - 2 \cdot \frac{1}{2} \cdot \frac{2}{3} \cdot a^2 \cdot a^4 \cdot b^1 \cdot b^3 + \frac{2^2}{3^2} (a^4)^2 \cdot (b^3)^2 = \\
 &= \frac{1}{4}a^{2 \cdot 2}b^2 - \frac{2}{3} \cdot a^{2+4} \cdot b^{1+3} + \frac{4}{9}a^{4 \cdot 2}b^{3 \cdot 2} = \\
 &= \frac{1}{4}a^4b^2 - \frac{2}{3}a^6b^4 + \frac{4}{9}a^8b^6
 \end{aligned}$$

$$\begin{aligned}
 69) \quad (5x-6y)^{-2} &= (5x-6y)^{2 \cdot (-1)} = \left((5x-6y)^2\right)^{-1} = \frac{1}{(5x-6y)^2} = \\
 &= \frac{1}{(5x)^2 - 2 \cdot 5 \cdot x \cdot 6 \cdot y + (6y)^2} = \frac{1}{5^2x^2 - 30xy + 6^2y^2} = \frac{1}{25x^2 - 30xy + 36y^2}
 \end{aligned}$$

$$\begin{aligned}
 70) \quad (x+4y)^{-2} &= (x+4y)^{2 \cdot (-1)} = \left((x+4y)^2\right)^{-1} = \frac{1}{(x+4y)^2} = \\
 &= \frac{1}{x^2 + 2 \cdot x \cdot 4 \cdot y + (4y)^2} = \frac{1}{x^2 + 8xy + 4^2y^2} = \frac{1}{x^2 + 8xy + 16y^2}
 \end{aligned}$$

34. 71)

U formuli piše: $(-a-b)^2 = (a+b)^2$

Pokažimo zašto je to tako: $(-a-b)^2 = (-1 \cdot (a+b))^2 = (-1)^2 \cdot (a+b)^2 = 1 \cdot (a+b)^2 = (a+b)^2$

Objašnjenje: $(-a-b)^2 = (-1 \cdot (a+b))^2 =$ Izlučili smo zajednički faktor (-1) ,
 $= (-1)^2 \cdot (a+b)^2 =$ pa smo primjenili pravilo: $(a \cdot b)^n = a^n \cdot b^n$
 $= 1 \cdot (a+b)^2 = (-1)^2 = 1$
 $= (a+b)^2$

Sada taj postupak primjenimo u: 71. , 72. , 73. , 74. ,

$$71) \quad (-x-3)^2 = (-1 \cdot (x+3))^2 = (-1)^2 \cdot (x+3)^2 = 1 \cdot (x^2 + 2 \cdot x \cdot 3 + 3^2) = x^2 + 6x + 9$$

$$72) \quad (-x-2y)^2 = (-1 \cdot (x+2y))^2 = \text{Izlučimo zajednički faktor } (-1),$$

$$= (-1)^2 \cdot (x+2y)^2 = \text{pa primjenimo pravilo: } (a \cdot b)^n = a^n \cdot b^n$$

$$= 1 \cdot (x^2 + 2 \cdot x \cdot 2y + (2y)^2) =$$

$$= 1 \cdot (x^2 + 4xy + 2^2 y^2) =$$

$$= x^2 + 4xy + 4y^2$$

$$73) \quad (-2a-3b)^2 = (-1 \cdot (2a+3b))^2 =$$

$$= (-1)^2 \cdot (2a+3b)^2 =$$

$$= 1 \cdot ((2a)^2 + 2 \cdot 2 \cdot a \cdot 3b + (3b)^2) =$$

$$= 1 \cdot (2^2 \cdot a^2 + 12ab + 3^2 b^2) =$$

$$= 4a^2 + 12ab + 9b^2$$

$$74) \quad (-x-4y)^2 = (-1 \cdot (x+4y))^2 =$$

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

$$= 1 \cdot (x^2 + 2 \cdot x \cdot 4y + (4y)^2) =$$

$$= x^2 + 8xy + 4^2 (y^2) =$$

$$= x^2 + 8xy + 16y^2$$

$$75) \quad \left(-\frac{1}{2}x-4y^2\right)^2 = \left(-1 \cdot \left(\frac{1}{2}x+4y^2\right)\right)^2 =$$

$$= (-1)^2 \cdot \left(\frac{1}{2}x+4y^2\right)^2 =$$

$$= 1 \cdot \left(\left(\frac{1}{2}x\right)^2 + 2 \cdot \frac{1}{2} \cdot x \cdot 4 \cdot y^2 + (4y^2)^2\right) =$$

$$= \frac{1^2}{2^2} x^2 + 4xy^2 + 4^2 (y^2)^2 =$$

$$= \frac{1}{4} x^2 + 4xy^2 + 16y^4$$

$$76) \quad (-a+7b)^2 = (7b-a)^2 =$$

$$= (7b)^2 - 2 \cdot 7 \cdot b \cdot a + a^2 =$$

$$= 7^2 b^2 - 14ba + a^2$$

$$= 49b^2 - 14ba + a^2$$

ili

$$= a^2 - 14ab + 49b^2$$

$$34.77) (-3x + y)^2 = (y - 3x)^2 =$$

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

$$= y^2 - 6yx + 3^2 x^2 =$$

$$= y^2 - 6yx + 9x^2 \quad \text{ili} \quad = 9x^2 - 6xy + y^2 \quad \text{obadva rj. su ispravna i ista...}$$

prvom i drugom članu zamjenimo mjesta

tako da drugi bude sa predznakom (-) ...i dalje je lako...

Taj zadatak možemo riješiti i na još dva načina:

II način:

$$\begin{aligned} 77) (-3x + y)^2 &= (-1 \cdot (3x - y))^2 = \\ &= (-1)^2 \cdot (3x - y)^2 = \\ &= 1 \cdot ((3x)^2 - 2 \cdot 3x \cdot y + y^2) = \\ &= 3^2 x^2 - 6xy + y^2 = \\ &= 9x^2 - 6xy + y^2 \end{aligned}$$

III način:

$$\begin{aligned} (-3x + y)^2 &= (-3x)^2 + 2 \cdot (-3x) \cdot y + y^2 = \\ &= (-3)^2 x^2 - 2 \cdot 3 \cdot x \cdot y + y^2 = \\ &= 9x^2 - 6xy + y^2 \end{aligned}$$

Uvijek dobijemo isto rješenje...pa birajte...

na koji način će te rješavati ovakve zadatke

$$78) (-5a^2b^3 + 2c^4)^2 = (2c^4 - 5a^2b^3)^2 =$$

$$= (2c^4)^2 - 2 \cdot 2 \cdot c^4 \cdot 5 \cdot a^2 \cdot b^3 + (5a^2b^3)^2 =$$

$$= 2^2 (c^4)^2 - 20a^2b^3c^4 + 5^2 (a^2)^2 \cdot (b^3)^2 =$$

$$= 4c^{4 \cdot 2} - 20a^2b^3c^4 + 25a^{2 \cdot 2}b^{3 \cdot 2} =$$

$$= 4c^8 - 20a^2b^3c^4 + 25a^4b^6 \quad \text{ili} \quad = 25a^4b^6 - 20a^2b^3c^4 + 4c^8$$

$$79) (-2x^2y^3 + 3z^4)^2 = (3z^4 - 2x^2y^3)^2 =$$

$$= (3z^4)^2 - 2 \cdot 3 \cdot z^4 \cdot 2 \cdot x^2 \cdot y^3 + (2x^2y^3)^2 =$$

$$= 3^2 (z^4)^2 - 12z^4x^2y^3 + 2^2 (x^2)^2 \cdot (y^3)^2 =$$

$$= 9z^{4 \cdot 2} - 12x^2y^3z^4 + 4x^{2 \cdot 2}y^{3 \cdot 2} =$$

$$= 9z^8 - 12x^2y^3z^4 + 4x^4y^6 \quad \text{ili} \quad = 4x^4y^6 - 12x^2y^3z^4 + 9z^8$$

$$80) (-2^m + 2^n)^2 = (2^n - 2^m)^2 =$$

$$= (2^n)^2 - 2 \cdot 2^n \cdot 2^m + (2^m)^2 =$$

$$= 2^{n \cdot 2} - 2^1 \cdot 2^n \cdot 2^m + 2^{m \cdot 2} =$$

$$= 2^{2n} - 2^{1+n+m} + 2^{2m} =$$

$$= 2^{2 \cdot n} - 2^{1+n+m} + 2^{2 \cdot m} =$$

$$= (2^2)^n - 2^{n+m+1} + (2^2)^m =$$

$$= 4^n - 2^{n+m+1} + 4^m \quad \text{ili u ovom obliku, ovisi o tome kako radite u školi...}$$

Rješenje možemo ostaviti u ovom obliku...

34. Kvadriramo po pravilu: $(A+B)^2 = A^2 + 2 \cdot A \cdot B + B^2$ i $(A-B)^2 = A^2 - 2 \cdot A \cdot B + B^2$

$$\begin{aligned}
 81) \quad (2^m + 3^n)^2 &= (2^m)^2 + 2 \cdot 2^m \cdot 3^n + (3^n)^2 = & 82) \quad (3^m - 5^m)^2 &= (3^m)^2 - 2 \cdot 3^m \cdot 5^m + (5^m)^2 = \\
 &= 2^{m \cdot 2} + 2^1 \cdot 2^m \cdot 3^n + 3^{n \cdot 2} = & &= 3^{m \cdot 2} - 2 \cdot (3 \cdot 5)^m + 5^{m \cdot 2} = \\
 &= 2^{2 \cdot m} + 2^{1+m} \cdot 3^n + 3^{2 \cdot n} = & &= 3^{2 \cdot m} - 2 \cdot 15^m + 5^{2 \cdot m} = \\
 &= (2^2)^m + 2^{m+1} \cdot 3^n + (3^2)^n = & &= (3^2)^m - 2 \cdot 15^m + (5^2)^m = \\
 &= 4^n + 2^{m+1} \cdot 3^n + 9^n & &= 9^m - 2 \cdot 15^m + 25^m
 \end{aligned}$$

$$\begin{aligned}
 83) \quad (2^m + 2^n)^2 &= (2^m)^2 + 2 \cdot 2^m \cdot 2^n + (2^n)^2 = & 84) \quad (2^m + 2^{m-1})^2 &= (2^m)^2 + 2 \cdot 2^m \cdot 2^{m-1} + (2^{m-1})^2 = \\
 &= 2^{m \cdot 2} + 2^1 \cdot 2^m \cdot 2^n + 2^{n \cdot 2} = & &= 2^{m \cdot 2} + 2^1 \cdot 2^m \cdot 2^{m-1} + 2^{(m-1) \cdot 2} = \\
 &= 2^{2 \cdot m} + 2^{1+m+n} + 2^{2 \cdot n} = & &= 2^{2 \cdot m} + 2^{1+m+m-1} + 2^{2 \cdot (m-1)} = \\
 &= (2^2)^m + 2^{m+n+1} + (2^2)^n = & &= (2^2)^m + 2^{2m} + (2^2)^{m-1} = \\
 &= 4^m + 2^{m+n+1} + 4^n & &= 4^m + (2^2)^m + 4^{m-1} = \\
 & & &= 4^m + 4^m + 4^{m-1} = \\
 & & &= 2 \cdot 4^m + 4^{m-1}
 \end{aligned}$$

$$\begin{aligned}
 85) \quad (3^m - 3^n)^2 &= (3^m)^2 - 2 \cdot 3^m \cdot 3^n + (3^n)^2 = \\
 &= 3^{m \cdot 2} - 2 \cdot 3^{m+n} + 3^{n \cdot 2} = \\
 &= 3^{2 \cdot m} - 2 \cdot 3^{m+n} + 3^{2 \cdot n} = \\
 &= (3^2)^m - 2 \cdot 3^{m+n} + (3^2)^n = \\
 &= 9^m - 2 \cdot 3^{m+n} + 9^n
 \end{aligned}$$

$$\begin{aligned}
 86) \quad (2^{m+1} + 2^{m-1})^2 &= (2^{m+1})^2 + 2 \cdot 2^{m+1} \cdot 2^{m-1} + (2^{m-1})^2 = \\
 &= 2^{(m+1) \cdot 2} + 2^1 \cdot 2^{m+1} \cdot 2^{m-1} + 2^{(m-1) \cdot 2} = \\
 &= 2^{2 \cdot (m+1)} + 2^{1+m+1+m-1} + 2^{2 \cdot (m-1)} = \\
 &= (2^2)^{m+1} + 2^{2m+1} + (2^2)^{m-1} = \\
 &= 4^{m+1} + 2^{2m+1} + 4^{m-1}
 \end{aligned}$$

$$\begin{aligned}
 87) \quad (2^n + 2^{1-n})^2 &= (2^n)^2 - 2 \cdot 2^n \cdot 2^{1-n} + (2^{1-n})^2 = \\
 &= 2^{n \cdot 2} - 2^1 \cdot 2^n \cdot 2^{1-n} + 2^{(1-n) \cdot 2} = \\
 &= 2^{2 \cdot n} - 2^{1+n+1-n} + 2^{2 \cdot (1-n)} = \\
 &= (2^2)^n - 2^2 + (2^2)^{1-n} = \\
 &= 4^n - 4 + 4^{1-n}
 \end{aligned}$$

34. Kvadriramo po pravilu: $(A+B)^2 = A^2 + 2 \cdot A \cdot B + B^2$ i $(A-B)^2 = A^2 - 2 \cdot A \cdot B + B^2$

$$\begin{aligned}
 88) \quad (2^{n+1} - 2^{n-2})^2 &= (2^{n+1})^2 - 2 \cdot 2^{n+1} \cdot 2^{n-2} + (2^{n-2})^2 = \\
 &= 2^{(n+1) \cdot 2} - 2^1 \cdot 2^{n+1} \cdot 2^{n-2} + 2^{(n-2) \cdot 2} = \\
 &= 2^{2 \cdot (n+1)} - 2^{1+n+1+n-2} + 2^{2 \cdot (n-2)} = \\
 &= (2^2)^{n+1} - 2^{2n} + (2^2)^{n-2} = \\
 &= 4^{n+1} - (2^2)^n + 4^{n-2} = \\
 &= 4^{n+1} - 4^n + 4^{n-2}
 \end{aligned}$$

$$\begin{aligned}
 89) \quad (a^n + a^{n+1})^2 &= (a^n)^2 + 2 \cdot a^n \cdot a^{n+1} + (a^{n+1})^2 = \\
 &= a^{n \cdot 2} + 2 \cdot a^{n+n+1} + a^{(n+1) \cdot 2} = \\
 &= a^{2n} + 2a^{2n+1} + a^{2n+2}
 \end{aligned}$$

$$\begin{aligned}
 90) \quad (a^{n-1} - a^{n+1})^2 &= (a^{n-1})^2 - 2 \cdot a^{n-1} \cdot a^{n+1} + (a^{n+1})^2 = \\
 &= a^{(n-1) \cdot 2} - 2 \cdot a^{n-1+n+1} + a^{(n+1) \cdot 2} = \\
 &= a^{2n-2} - 2a^{2n} + a^{2n+2}
 \end{aligned}$$

$$\begin{aligned}
 91) \quad (2a^x - 3b^x)^2 &= (2a^x)^2 - 2 \cdot 2 \cdot a^x \cdot 3 \cdot b^x + (3b^x)^2 = \\
 &= 2^2 (a^x)^2 - 12 \cdot a^x \cdot b^x + 3^2 (b^x)^2 = \\
 &= 4a^{x \cdot 2} - 12a^x b^x + 9b^{x \cdot 2} = \\
 &= 4a^{2x} - 12a^x b^x + 9b^{2x}
 \end{aligned}$$

$$\begin{aligned}
 92) \quad (2a^x + 3b^y)^2 &= (2a^x)^2 + 2 \cdot 2a^x \cdot 3b^y + (3b^y)^2 = \\
 &= 2^2 (a^x)^2 + 12a^x b^y + 3^2 (b^y)^2 = \\
 &= 4a^{x \cdot 2} + 12a^x b^y + 9b^{y \cdot 2} = \\
 &= 4a^{2x} + 12a^x b^y + 9b^{2y}
 \end{aligned}$$