

$$\begin{array}{c} 1 \\ 1 \ 1 \\ 1 \ 2 \ 1 \\ 1 \ 3 \ 3 \ 1 \end{array}$$

3. Reši enačbo: $x^4 - 5x^2(x - 2) = x(x - 2)^3 + 16x - 16$. Zapiši vse realne rešitve. [6t] 6

$$\begin{aligned} x^4 - 5x^3 + 10x^2 &= x(x^3 - 6x^2 + 12x - 8) + 16x - 16 \\ x^4 - 5x^3 + 10x^2 &= x^4 - 6x^3 + 12x^2 - 8x + 16x - 16 \\ x^3 + 10x^2 &= 12x^2 + 8x - 16 \end{aligned}$$

$$x^3 - 2x^2 + 8x + 16 = 0$$

$$x^2(x - 2) - 8(x - 2) = 0$$

$$(x - 2)(x^2 - 8) = 0$$

$$(x - 2)(x - \sqrt{8})(x + \sqrt{8}) = 0$$

$$x \in \{2, \sqrt{8}, -\sqrt{8}\}$$

4. Reši sistem enačb. Pri reševanju si lahko pomagaš z uvedbo novih neznank. [6t] 6

$$\begin{aligned} \frac{10}{x-5} + \frac{1}{y+2} &= 1 \\ \frac{25}{x-5} + \frac{3}{y+2} &= 2 \end{aligned}$$

$$\begin{pmatrix} 10 \\ 25 \end{pmatrix} \cdot \begin{pmatrix} 1 \\ 3 \end{pmatrix} = \begin{pmatrix} 10+25 \\ 35 \end{pmatrix}$$

$$\frac{10+25}{x-5} + \frac{4}{y+2} = 3$$

$$\frac{35}{x-5} + \frac{4}{y+2} = 3$$

$$\begin{aligned} 35(y+2) + 4(x-5) &= 3(x-5)(y+2) \\ &= 3(xy + 2x - 5y - 10) \end{aligned}$$

$$\begin{aligned} 35y + 70 + 4x - 20 &= 3(xy + 2x - 5y - 10) \\ 35y + 50 + 4x &= 3xy + 6x - 15y - 30 \end{aligned}$$

$$35y + 50 + 4x = 3xy + 6x - 15y - 30$$

$$35y + 80 + 4x - 6x + 15y - 3xy = 0$$

$$50y - 2x - 3xy + 80 = 0$$

$$50y - 2x - 3xy = -80$$

$$-80 - 50y = 2x - 3xy$$

GLEJ DOD. LIST

$$4. \quad \frac{30}{x-5} + \frac{3}{y+2} = 3$$

$$\frac{25}{x-5} + \frac{3}{y+2} = 2$$

$$\frac{30-25}{x-5} = 1$$

$$\frac{5}{x-5} = 1$$

$$5 = x-5$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$x = 10$$

$$\frac{10 \cdot 2}{5} + \frac{1}{-2 \frac{1}{3} + 2} =$$

$$= \frac{20}{5} + \frac{1}{-\frac{2}{3}} = 4 - \frac{3}{2} = \frac{8-3}{2} = \frac{5}{2}$$

$$\frac{25 \cdot 2}{10-5} + \frac{3}{-1} = \frac{50}{5} - 3 = 10 - 3 = 7$$

$$\frac{10}{10-5} + \frac{1}{-3+2} = \frac{10}{5} - 1 = 2 - 1 = 1$$

$$\frac{25}{10-5} + \frac{3}{-1} = \frac{25}{5} - 3 = 5 - 3 = 2$$

$$\frac{30}{x-5} + \frac{3}{y+2} = 3$$

$$\frac{30 \cdot 2 \cdot 6}{45-5} + \frac{3}{y+2} = 3$$

$$12 + \frac{3}{y+2} = 3$$

$$12(y+2) + 3 = 3(y+2)$$

$$12y + 24 + 3 = 3y + 6$$

$$9y = 6 - 27$$

$$9y = -19$$

$$y = -\frac{19}{9} = -2 \frac{1}{9}$$

$$-3y = 9$$

$$y = -3$$

$$x = 10$$

$$\frac{30}{5} + \frac{3}{x+2} = 3$$

$$6 + \frac{3}{x+2} = 3$$

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

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

$$3 = -3x - 6$$

5. a) Obravnavaj enačbo glede na vrednost parametra $a \in \mathbb{R}$.

[5t] 4

$$\frac{x(a^2 - 27)}{a} - 1 = 6x + \frac{3}{a}$$

$$x(a^2 - 27) - a = 6xa + 3$$

$$a^2x - 27x - 6ax = 3 + a$$

$$x(a^2 - 6a - 27) = a + 3$$

$$x(a - 9)(a + 3) = a + 3 \quad \checkmark \quad \div (a - 9)(a + 3)$$

$$\begin{array}{l} \underline{a=9} \\ 0=12 \end{array} \quad \begin{array}{l} \underline{a=-3} \\ 0=0 \end{array} \quad \begin{array}{l} \underline{a \neq 9 \wedge a \neq -3 \wedge a \neq 0} \\ x = \frac{a+3}{(a-9)(a+3)} = \frac{1}{a-9} \end{array}$$

enačba
nima
~~polnega~~
rešitve
✓

$x \in \mathbb{R}$
✓

$a=0$:
enačba nima pomena

b) Za $a = 1$ reši neenačbo $\frac{x(a^2 - 27)}{a} - 1 < 6x + \frac{3}{a}$.

[3t] 3

$$x(1 - 27) - 1 < 6x + 3$$

$$-26x < 6x + 4$$

$$-32x < 4$$

$$\underline{x > -\frac{1}{8}} \quad \checkmark$$

6. Oče je 4 leta starejši od matere, sin je star 24 let. Koliko let sta stara oče in mati, če je bil pred štirimi leti sin za 72 let mlajši kot oče in mati skupaj? Zapiši odgovor.

[5t] 5

	SEDA	PRED 4 LETI
[o] OČE [o]	$m+4$	$m+4$ m
[m] MAMA	m	m $m-4$
[s] SIN	24 ✓	

$$m + m - 4 + 72 = s - 4$$

$$m + m - 4 + 72 = s - 4$$

$$2m + 72 = s$$

$$m = \frac{s + 72}{2} = \frac{s}{2} + 36$$

$$O = \frac{s}{2} + 36 + 4 = 12 + 40 = 52$$

$$m = \frac{s}{2} + 36 = 12 + 36 = 48$$

PREVERA:

$$\begin{aligned} 100 - 8 &= 92 \\ 24 - 4 &= 20 \end{aligned} \quad \begin{aligned} &+ 72 \\ &= 92 \end{aligned}$$

O: Oče je star 52 let, mati pa 48 let.