

## Linearne jednadžbe s jednom nepoznanicom

1) Riješi jednadžbu:

a)  $-6x = 12$

b)  $4x = -5$

c)  $-\frac{2}{3}x = -\frac{4}{5}$

d)  $0.7x = 1.631$

e)  $\frac{x}{5} = -2$

f)  $\frac{-x}{8} = 1$

2) Riješi jednadžbu i **provjeri** dobiveno rješenje:

a)  $3x - 1 = 7x + 3$

b)  $3x - 8 + 5x = 7 + x - 1$

c)  $4 - 3(x - 1) = 10$

3) Riješi jednadžbu:

a)  $\frac{4}{5} - x = 1$

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

c)  $x - 8 - 2x = 9 - 3x - 3$

d)  $-2a + 16 = 5a - 19$

e)  $15y - 1 - 12y = 18 + 2y - 13$

f)  $4x + 40 + 3x = 2x - 5$

4) Riješi jednadžbu:

a)  $5x + (7 - 2x) = 16$

b)  $2 - (5 - x) = 13$

c)  $9 - (8 - x) = 7 - (x - 6)$

d)  $(-3a + 2) - (9 - 4a) = 7$

e)  $(2x - 3) - (4 - 3x) + (1 - 6x) = 4$

f)  $3 - (2 - x) = 6 - (2x + 1)$

5) Riješi jednadžbu:

$$17 - [12x - (15 - 2x) - 11] = 16x - [36 - (5x - 9) + 7x] - 52$$

6) Riješi jednadžbu

a)  $3(9 - 2x) = 28 + 5(11 - x)$

b)  $3x - 5(3 + x) = 3(-3 - x)$

c)  $2(x - 3) - 5(2 - x) = 5$

d)  $3(9 - 2x) - 5(11 - x) - 28 = 7(x + 4) - 28$

e)  $4(x - 1) - (x + 8) = 0$

f)  $13x - 3(3x - 1) = 4(x - 5) - 2(3x - 1)$

7) Riješi jednadžbu:

a)  $\frac{3}{4} + 3x = \frac{2}{3}x - 1$

b)  $\frac{x-3}{2} - x = 2$

c)  $\frac{x}{4} - \frac{x+1}{3} = \frac{1}{2}$

d)  $\frac{5x-3}{2} - \frac{3x-5}{4} = 5$

e)  $\frac{3x}{2} - \frac{x}{4} + \frac{1}{3} = 1 - \frac{1}{6}x + \frac{3}{4}$

f)  $\frac{3x-1}{3} - \frac{x-1}{6} = \frac{7}{6} - \frac{x-2}{2}$

# Linearne jednadžbe s jednom nepoznanicom

– rješenja –

1) Riješi jednadžbu:

a)  $-6x = 12 \text{ } /: (-6)$

$$x = -2$$

b)  $4x = -5 \text{ } /: 4$

$$x = \frac{-5}{4}$$

$$x = -1\frac{1}{4}$$

c)  $-\frac{2}{3}x = -\frac{4}{5} \text{ } /: \left(\frac{-2}{3}\right)$

$$x = \frac{4}{5} : \frac{2}{3}$$

$$x = \frac{4^2}{5} \cdot \frac{3}{2_1}$$

$$x = \frac{6}{5}$$

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

d)  $0.7x = 1.631 \text{ } /: 0.7$

$$x = 1.631 : 0.7$$

$$x = 16.31 : 7$$

$$x = 2.33$$

e)  $\frac{x}{5} = -2 \text{ } / \cdot 5$

$$x = -2 \cdot 5$$

$$x = -10$$

f)  $\frac{-x}{8} = 1 \text{ } / \cdot 8$

$$-x = 1 \cdot 8 \text{ } / \cdot (-1)$$

$$x = -8$$

2) Riješi jednadžbu i **provjeri** dobiveno rješenje:

a)  $3x - 1 = 7x + 3$

$$3x - 7x = 3 + 1$$

$$-4x = 4 \text{ } /: (-4)$$

$$x = -1$$

**Provjera:**

$$3x - 1 = 7x + 3$$

$$3 \cdot (-1) - 1 = 7 \cdot (-1) + 3$$

$$-3 - 1 = -7 + 3$$

$$-4 = -4$$

b)  $3x - 8 + 5x = 7 + x - 1$

$$3x + 5x - x = 7 - 1 + 8$$

$$7x = 14 \text{ } /: 2$$

$$x = 2$$

**Provjera:**

$$3x - 8 + 5x = 7 + x - 1$$

$$3 \cdot 2 - 8 + 5 \cdot 2 = 7 + 2 - 1$$

$$6 - 8 + 10 = 7 + 2 - 1$$

$$8 = 8$$

c)  $4 - 3(x - 1) = 10$

$$4 - 3x + 3 = 10$$

$$-3x = 10 - 4 - 3$$

$$-3x = 3 \text{ } /: (-3)$$

$$x = -1$$

**Provjera:**

$$4 - 3(x - 1) = 10$$

$$4 - 3(-1 - 1) = 10$$

$$4 - 3 \cdot (-2) = 10$$

$$4 + 6 = 10$$

$$10 = 10$$

3) Riješi jednadžbu:

a)  $\frac{4}{5} - x = 1$

$$-x = 1 - \frac{4}{5}$$

$$-x = \frac{1}{5} \text{ } / \cdot (-1)$$

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

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

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

$$x = \frac{4-3}{6}$$

$$x = \frac{1}{6}$$

$$\begin{aligned} \text{c) } x - 8 - 2x &= 9 - 3x - 3 \\ x - 2x + 3x &= 9 - 3 + 8 \\ 2x &= 14 \quad / : 2 \\ x &= 7 \end{aligned}$$

$$\begin{aligned} \text{d) } -2a + 16 &= 5a - 19 \\ -2a - 5a &= -19 - 16 \\ -7a &= -35 \quad / : (-7) \\ a &= 5 \end{aligned}$$

$$\begin{aligned} \text{e) } 15y - 1 - 12y &= 18 + 2y - 13 \\ 15y - 12y - 2y &= 18 - 13 + 1 \\ y &= 6 \end{aligned}$$

$$\begin{aligned} \text{f) } 4x + 40 + 3x &= 2x - 5 \\ 4x + 3x - 2x &= -5 - 40 \\ 5x &= -45 \quad / : 5 \\ x &= -9 \end{aligned}$$

4) Riješi jednađbu:

$$\begin{aligned} \text{a) } 5x + (7 - 2x) &= 16 \\ 5x + 7 - 2x &= 16 \\ 5x - 2x &= 16 - 7 \\ 3x &= 9 \quad / : 3 \\ x &= 3 \end{aligned}$$

$$\begin{aligned} \text{b) } 2 - (5 - x) &= 13 + 2x \\ 2 - 5 + x &= 13 + 2x \\ x - 2x &= 13 - 2 + 5 \\ -x &= 16 \quad / \cdot (-1) \\ x &= -16 \end{aligned}$$

$$\begin{aligned} \text{c) } 9 - (8 - x) &= 7 - (x - 6) \\ 9 - 8 + x &= 7 - x + 6 \\ x + x &= 7 + 6 - 9 + 8 \\ 2x &= 12 \quad / : 2 \\ x &= 6 \end{aligned}$$

$$\begin{aligned} \text{d) } (-3a + 2) - (9 - 4a) &= 7 \\ -3a + 2 - 9 + 4a &= 7 \\ -3a + 4a &= 7 - 2 + 9 \\ a &= 14 \end{aligned}$$

$$\begin{aligned} \text{e) } (2x - 3) - (4 - 3x) + (1 - 6x) &= 4 \\ 2x - 3 - 4 + 3x + 1 - 6x &= 4 \\ 2x + 3x - 6x &= 4 + 3 + 4 - 1 \\ -x &= 10 \quad / \cdot (-1) \\ x &= -10 \end{aligned}$$

$$\begin{aligned} \text{f) } 3 - (2 - x) &= 6 - (2x + 1) \\ 3 - 2 + x &= 6 - 2x - 1 \\ x + 2x &= 6 - 1 - 3 - 2 \\ 3x &= 0 \quad / : 3 \\ x &= 0 \end{aligned}$$

5) Riješi jednađbu:

$$17 - [12x - (15 - 2x) - 11] = 16x - [36 - (5x - 9) + 7x] - 52$$

► unutarnja zagrada

$$17 - [12x - 15 + 2x - 11] = 16x - [36 - 5x + 9 + 7x] - 52$$

► vanjska zagrada

$$17 - 12x + 15 - 2x + 11 = 16x - 36 + 5x - 9 - 7x - 52$$

$$-12x - 2x - 16x - 5x + 7x = -36 - 9 - 52 - 17 - 15 - 11$$

$$-28x = -140 \quad / : (-28)$$

$$x = 5$$

6) Riješi jednađbu:

$$\begin{aligned} \text{a) } 3(9 - 2x) &= 28 + 5(11 - x) \\ 27 - 6x &= 28 + 55 - 5x \\ -6x + 5x &= 28 + 55 - 27 \\ -x &= 56 \quad / \cdot (-1) \\ x &= -56 \end{aligned}$$

$$\begin{aligned} \text{b) } 3x - 5(3 + x) &= 3(-3 - x) \\ 3x - 15 - 5x &= -9 - 3x \\ 3x - 5x + 3x &= -9 + 15 \\ x &= 6 \end{aligned}$$

$$\text{c) } 2(x-3) - 5(2-x) = 5$$

$$2x - 6 - 10 + 5x = 5$$

$$2x - 5x = 5 + 6 + 10$$

$$-3x = 21 \quad /: (-3)$$

$$x = -7$$

$$\text{e) } 4(x-1) - (x+8) = 0$$

$$4x - 4 - x - 8 = 0$$

$$4x - x = 4 + 8$$

$$3x = 12 \quad /: 3$$

$$x = 4$$

$$\text{d) } 3(9-2x) - 5(11-x) - 28 = 7(x+4) - 28$$

$$27 - 6x - 55 + 5x - 28 = 7x + 28 - 28$$

$$-6x + 5x - 7x = -27 + 55 + 28$$

$$-8x = 56 \quad /: (-8)$$

$$x = -7$$

$$\text{f) } 13x - 3(3x-1) = 4(x-5) - 2(3x-1)$$

$$13x - 9x + 3 = 4x - 20 - 6x + 2$$

$$13x - 9x - 4x + 6x = -20 + 2 - 3$$

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

$$x = -1$$

7) Riješi jednađbu:

$$\text{a) } \frac{3}{4} + 3x = \frac{2}{3}x - 1 \quad / \cdot 12$$

$$12^3 \cdot \frac{3}{4} + 12 \cdot 3x = 12^4 \cdot \frac{2}{3}x - 12 \cdot 1$$

$$9 + 36x = 8x - 12$$

$$36x - 8x = -12 - 9$$

$$28x = -21 \quad /: 3$$

$$x = \frac{-21}{28}$$

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

$$\text{b) } \frac{x-3}{2} - x = 2 \quad / \cdot 2$$

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

$$x - 3 - 2x = 4$$

$$x - 2x = 4 + 3$$

$$-x = 7 \quad / \cdot (-1)$$

$$x = -7$$

$$\text{c) } \frac{x}{4} - \frac{x+1}{3} = \frac{1}{2} \quad / \cdot 12$$

$$12^3 \cdot \frac{x}{4} - 12^4 \cdot \frac{x+1}{3} = 12^6 \cdot \frac{1}{2}$$

$$3x - 4(x+1) = 6$$

$$3x - 4x - 4 = 6$$

$$3x - 4x = 6 + 4$$

$$-x = 10 \quad / \cdot (-1)$$

$$x = -10$$

$$\text{d) } \frac{5x-3}{2} - \frac{3x-5}{4} = 5 \quad / \cdot 4$$

$$4^2 \cdot \frac{5x-3}{2} - 4 \cdot \frac{3x-5}{4} = 4 \cdot 5$$

$$2(5x-3) - (3x-5) = 20$$

$$10x - 6 - 3x + 5 = 20$$

$$10x - 3x = 20 + 6 - 5$$

$$7x = 21 \quad /: 7$$

$$x = 3$$

$$\text{e) } \frac{3x}{2} - \frac{x}{4} + \frac{1}{3} = 1 - \frac{1}{6}x + \frac{3}{4} \quad / \cdot 12$$

$$12^6 \cdot \frac{3x}{2} - 12^3 \cdot \frac{x}{4} + 12^4 \cdot \frac{1}{3} = 12 \cdot 1 - 12^2 \cdot \frac{1}{6}x + 12^3 \cdot \frac{3}{4}$$

$$18x - 3x + 4 = 12 - 2x + 9$$

$$18x - 3x + 2x = 12 + 9 - 4$$

$$17x = 17 \quad /: 17$$

$$x = 1$$

$$\text{f) } \frac{3x-1}{3} - \frac{x-1}{6} = \frac{7}{6} - \frac{x-2}{2} \quad / \cdot 6$$

$$6^2 \cdot \frac{3x-1}{3} - 6^1 \cdot \frac{x-1}{6} = 6^1 \cdot \frac{7}{6} - 6^3 \cdot \frac{x-2}{2}$$

$$2(3x-1) - (x-1) = 7 - 3(x-2)$$

$$6x - 2 - x + 1 = 7 - 3x + 6$$

$$6x - x + 3x = 7 + 6 + 2 - 1$$

$$8x = 14 \quad / : 8$$

$$x = \frac{14}{8}$$

$$x = \frac{7}{4}$$

$$x = 1 \frac{3}{4}$$