

1. UČENIK UME DA REŠI LINEARNE JEDNAČINE U KOJIMA SE NEPOZNATA POJAVLJUJE SAMO U JEDNOM ČLANU

Da se podsetimo kako se izračunava nepoznata u različitim situacijama:

Sabiranje (+)

$$\text{sabirak} + \text{sabirak} = \text{zbir}$$

$$\text{nepoznati sabirak} = \text{zbir} - \text{poznati sabirak}$$

Primer 1.

Reši jednačine:

a) $x + 5 = 12$

b) $23 + x = 11$

c) $-3 + x = 1$

d) $-2 + x = -15$

e) $x + \frac{5}{12} = \frac{7}{12}$

f) $-3,6 + x = -2,8$

g) $\frac{2}{5} + x = -1,1$

Rešenje:

a)

$$x + 5 = 12$$

$$x = 12 - 5$$

$$\boxed{x = 7}$$

b)

$$23 + x = 11$$

$$x = 11 - 23$$

$$\boxed{x = -12}$$

c)

$$-3 + x = 1$$

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

$$x = 1 + 3$$

$$\boxed{x = 4}$$

d)

$$-2 + x = -15$$

$$x = -15 - (-2)$$

$$x = -15 + 2$$

$$\boxed{x = -13}$$

e)

$$x + \frac{5}{12} = \frac{7}{12}$$

$$x = \frac{7}{12} - \frac{5}{12}$$

$$x = \frac{2}{12}$$

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

f)

$$-3,6 + x = -2,8$$

$$x = -2,8 - (-3,6)$$

$$x = -2,8 + 3,6$$

$$\boxed{x = +0,8}$$

g) preko razlomaka

$$\frac{2}{5} + x = -1,1$$

$$\frac{2}{5} + x = -\frac{11}{10}$$

$$x = -\frac{11}{10} - \frac{2}{5}^{(*2)}$$

$$x = -\frac{11}{10} - \frac{4}{10}$$

$$x = -\frac{15^{(*5)}}{10} = -\frac{3}{2}$$

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

g) u decimalnom zapisu

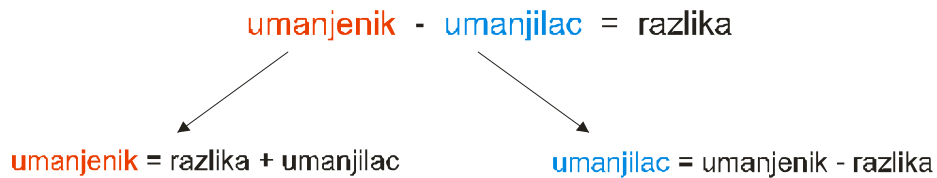
$$\frac{2}{5} + x = -1,1$$

$$0,4 + x = -1,1$$

$$x = -1,1 - 0,4$$

$$\boxed{x = -1,5}$$

Oduzimanje (-)



Primer 2.

Reši jednačine:

- a) $x - 13 = 20$
b) $x - 3 = -4$
c) $7 - x = 12$
d) $-3 - x = 21$
e) $-5 - x = -15$

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

g) $\frac{10}{11} - x = \frac{1}{11}$

h) $x - 3,5 = -0,12$

i) $-\frac{3}{4} - x = -\frac{5}{6}$

Rešenje:

a) $x - 13 = 20$
 $x = 20 + 13$
 $x = 33$

b) $x \boxed{-} 3 = -4$
Znak operacije
Ne uzima se!
 $x = -4 + 3$
 $x = -1$

c) $7 - x = 12$
 $x = 7 - 12$
 $x = -5$

d) $-3 - x = 21$
 $x = -3 - 21$
 $x = -24$

e) $-5 - x = -15$
 $x = -5 - (-15)$
 $x = -5 + 15$
 $x = 10$

f) $x - \frac{3}{5} = \frac{2}{5}$
 $x = \frac{2}{5} + \frac{3}{5}$
 $x = \frac{5}{5}$
 $x = 1$

g) $\frac{10}{11} - x = \frac{1}{11}$
 $x = \frac{10}{11} - \frac{1}{11}$
 $x = \frac{9}{11}$

h) $x - 3,5 = -0,12$
 $x = -0,12 + 3,5$
Potpisemo:
 $3,50$
 $-0,12$
 $3,38$
 $x = 3,38$

i) $-\frac{3}{4} - x = -\frac{5}{6}$
 $x = -\frac{3}{4} - \left(-\frac{5}{6}\right)$
 $x = -\frac{3^{(*3}}{4} + \frac{5^{(*2}}{6}$
 $x = -\frac{9}{12} + \frac{10}{12}$
 $x = \frac{1}{12}$

Množenje (\cdot)

činilac \cdot činilac = proizvod

nepoznati činilac = proizvod : poznati činilac

A u situaciji kad ne možemo podeliti dva broja, bolje je zapisati:

nepoznati činilac = $\frac{\text{proizvod}}{\text{poznati činilac}}$
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Primer 3.

Reši jednačine:

a) $9 \cdot x = 36$

b) $x \cdot (-7) = 63$

c) $-11 \cdot x = -253$

d) $-5 \cdot (-x) = -25$

e) $\frac{3}{10} \cdot x = 1\frac{4}{5}$

f) $x \cdot 0,25 = -0,5$

g) $0,125 \cdot x = 2\frac{1}{4}$

Rešenje:

a)

$$9 \cdot x = 36$$

$$x = 36 : 9$$

$$\boxed{x = 4}$$

b)

$$x \cdot (-7) = 63$$

$$x = 63 : (-7) \rightarrow \text{Pazi } \boxed{+ : - = -}$$

$$\boxed{x = -9}$$

c)

$$-11 \cdot x = -253$$

$$x = \frac{-253}{-11}$$

$$\boxed{x = +23}$$

d)

$$-5 \cdot (-x) = -25$$

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

$$-x = +5 \dots / * (-1)$$

$$\boxed{x = -5}$$

e)

$$\frac{3}{10} \cdot x = 1\frac{4}{5}$$

$$\frac{3}{10} \cdot x = \frac{9}{5}$$

$$x = \frac{9}{5} : \frac{3}{10}$$

$$x = \frac{\overset{3}{\cancel{9}}}{\underset{1}{\cancel{5}}} \cdot \frac{\overset{2}{\cancel{10}}}{\underset{1}{\cancel{3}}}$$

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

f)

$$x \cdot 0,25 = -0,5$$

$$x = -0,5 : 0,25 \rightarrow \text{Proširimo sa 100 zbog 0,25}$$

$$x = -50 : 25$$

$$\boxed{x = -2}$$

Preko razlomaka bi bilo:

$$x \cdot \frac{1}{4} = -\frac{1}{2}$$

$$x = -\frac{1}{2} : \frac{1}{4}$$

$$x = -\frac{1}{\cancel{2}} \cdot \frac{\overset{2}{\cancel{4}}}{1} \rightarrow \boxed{x = -2}$$

g)

$$0,125 \cdot x = 2\frac{1}{4}$$

$$\frac{1}{8} \cdot x = \frac{9}{4}$$

$$x = \frac{9}{4} : \frac{1}{8}$$

$$x = \frac{9}{\cancel{4}} \cdot \frac{\overset{2}{\cancel{8}}}{1}$$

$$x = \frac{18}{1} \rightarrow \boxed{x = 18}$$

Deljenje (:)



Primer 4.

Reši jednačine:

- a) $x : 3 = -4$
b) $-213 : x = -3$
c) $\frac{3}{4} : x = -\frac{9}{10}$
d) $x : 0,5 = 1,12$
e) $1,375 : x = 2\frac{1}{8}$

Rešenje:

a)

$$\begin{aligned}x : 3 &= -4 \\x &= (-4) \cdot 3 \\x &= -12\end{aligned}$$

b)

$$\begin{aligned}-213 : x &= -3 \\x &= (-213) : (-3) \\x &= +71\end{aligned}$$

c)

$$\begin{aligned}\frac{3}{4} : x &= -\frac{9}{10} \\x &= \frac{3}{4} : \left(-\frac{9}{10}\right) \\x &= -\frac{3}{4} \cdot \frac{10}{9} \\x &= -\frac{3}{\cancel{4}^2} \cdot \frac{\cancel{10}^5}{\cancel{9}^3} \\x &= -\frac{5}{6}\end{aligned}$$

d)

$$\begin{aligned}x : 0,5 &= 1,12 \\x &= 1,12 \cdot 0,5 \\112 \cdot 5 &= 560 \rightarrow 1,12 \cdot 0,5 = 0,560 = 0,56 \\x &= 0,56\end{aligned}$$

e)

$$\begin{aligned}1,375 : x &= 2\frac{1}{8} \\ \text{Kako je } 1,375 &= 1\frac{3}{8} = \frac{11}{8} \\ \frac{11}{8} : x &= \frac{17}{8} \\ x &= \frac{11}{8} : \frac{17}{8} \\ x &= \frac{11}{\cancel{8}} \cdot \frac{\cancel{8}}{17} \\ x &= \frac{11}{17}\end{aligned}$$