PETAK, 29.5.2020. 6.c

Dragi moji,

kraj je tjedna i pravo je vrijeme da se malo zaokruži, završi, stavi točka na „i“,…

Stoga još jednom ukratko – o zagradama i razlomcima u jednadžbama.

Primjer 1: Riješi jednadžbu:

$-(2x+8) + 4(-2x + 3) = 1 + (-5x +3)$

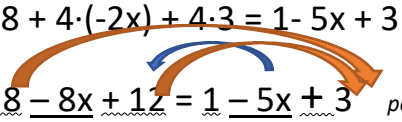
Najprije se „oslobađamo zagrada“. To radimo na 3 načina:

1. Ako je ispred zagrade samo znak +, prepisujemo članove unutar zagrade sa svojim predznacima, a zagrade obrišemo
2. Ako je ispred zagrade samo znak -, prepisujemo članove unutar zagrade sa suprotnim predznacima, a zagrade obrišemo
3. Ako se zagrada množi s nekim brojem, tada se svaki član u zagradi pomnoži s tim brojem (distributivnost!). $3(2x-5) = 3\cdot (2x-5)$

Dakle,

$-(2x+8) + 4(-2x + 3) = 1 + (-5x +3)$

$-2x - 8 + 4\cdot(-2x) + 4\cdot 3 = 1 - 5x + 3$ *sredimo*



$-2x - 8 - 8x + 12 = 1 - 5x + 3$ *podvucimo na jedan način poznate članove, a na drugi način nepoznate članove, razvrstajmo (pazi na promjenu predznaka kada je potrebno)*

$-2x - 8x + 5x = 1 + 3 + 8 - 12$

$-10x + 5x = 12 - 12$

$-5x = 0 \ / : (-5)$

$x = 0$

Primjer 2 : Riješite jednadžbu:

$$\frac{5}{2}-\frac{x}{6}=-\frac{2}{3} \quad /\cdot 6$$

množimo obje strane jednakosti s najmanjim zajedničkim višekratnikom nazivnika $V(2, 6, 3) = 6$

$$\overset{3}{\cancel{6}}\cdot\frac{5}{\cancel{2}}-\overset{1}{\cancel{6}}\cdot\frac{x}{\cancel{6}}=\overset{2}{\cancel{6}}\cdot\left(-\frac{2}{\cancel{3}}\right)$$

svaki član jednadžbe množimo sa 6

$$15-x=-4$$

$$-x=-4-15$$

$$-x=-19 \quad /:(-1)$$

$$\boxed{x=19}$$

Vaše aktivnosti:

1. Dva primjera **koja ćete prepisati u bilježnicu**:

Primjer 3 : Riješite jednadžbu:

$$\frac{x-5}{4}-\frac{2x+2}{8}=3x \quad /\cdot 8$$

$V(4, 8) = 8$

svaki član jednadžbe množimo s 8

$$\overset{2}{\cancel{8}}\cdot\frac{x-5}{\cancel{4}}-\overset{1}{\cancel{8}}\cdot\frac{2x+2}{\cancel{8}}=8\cdot 3x$$

$$2(x-5)-1(2x+2)=24x$$

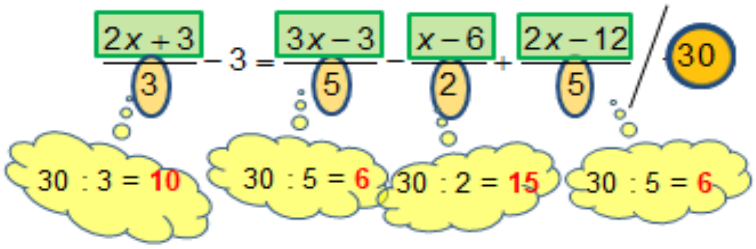
$$2x-10-2x-2=24x$$

$$2x-2x-24x=2+10$$

$$-24x=12 \quad /:(-24)$$

$$x=-\frac{\overset{1}{\cancel{12}}}{\underset{2}{\cancel{24}}}=-\frac{1}{2}$$

Primjer 4: Riješite jednadžbu:



$$10(2x + 3) - 90 = 6(3x - 3) - 15(x - 6) + 6(2x - 12)$$

$$20x + 30 - 90 = 18x - 18 - 15x + 90 + 12x - 72$$

$$20x - 18x + 15x - 12x = -72 + 90 - 18 + 90 - 30$$

$$5x = 60$$

$$x = 12$$

2. Riješite kviz.

   Kviz je obavezna vježba, može se riješiti 29.5.2020. od 8 do 23:59.
   https://forms.office.com/Pages/ResponsePage.aspx?id=FvJamzTGgEurAgyaPQKQka9gUnItaLdLqbvUmbRz--xUQlVOU1NNOEJHTjc0MlBNUlRZVDJHOVZZRS4u

3. **Zadatak:** Samostalno riješite jednadžbe:

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

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

   c) $\frac{x+5}{2} - \frac{1-x}{4} = \frac{9+2x}{3} - 1$

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

e) $7(2x - 1) - (5x - 4) + (9 - 7x) = 0$

Poslikajte bilježnicu te mi rješenja ovih 5 zadataka (a,b,c,d,e) pošaljite do nedjelje navečer na mail matematikasever@gmail.com

IND: isto

Po potrebi si pogledajte video lekciju Tonija Miluna https://www.youtube.com/watch?v=rHQbw3CccJQ ali ne sve, nego od 21:40 – 48:09 (samo taj dio videa, dakle otprilike od 21. do 48. minute videa).

Rješenja prethodne domaće zadaće - ispod

Zadatak 1.

a) $3-(5-x)=14$

$3-5+x=14$

$x=14-3+5$

$x=19-3$

$\boxed{x=16}$

PROVJERA

$3-(5-16)=14$

$3-5+16=14$

$19-5=14$

$14=14$ ✓

b) $2x+(3-4x)=5x-11$

$2x+3-4x=5x-11$

$2x-4x-5x=-11-3$

$-7x=-14 \;/:(-7)$

$\boxed{x=\frac{-14}{-7}=2}$

PROVJERA

$2\cdot 2+(3-4\cdot 2)=5\cdot 2-11$

$4+(3-8)=10-11$

$4+(-5)=-1$

$-1=-1$ ✓

c) $5\cdot(2x-11)-6=39$

$5\cdot 2x-5\cdot 11-6=39$

$10x-55-6=39$

$10x=39+55+6$

$10x=100 \;/:10$

$\boxed{x=\frac{100}{10}=10}$

PROVJERA

$5\cdot(2\cdot 10-11)-6=39$

$5\cdot(20-11)-6=36$

$5\cdot 9-6=36$

$45-6=36$

$36=36$ ✓

d) $2\cdot(x+5)=8\cdot(x+2)$

$2\cdot x+2\cdot 5=8\cdot x+8\cdot 2$

$2x+10=8x+16$

$2x-8x=16-10$

$-6x=6 \;/:(-6)$

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

$\boxed{x=-1}$

PROVJERA

$2\cdot(-1+5)=8\cdot(-1+2)$

$2\cdot 4=8\cdot 1$

$8=8$

✓

e) $3(-5x+15)+45 = -8(5x-15)$ → $3\cdot(-5x)+3\cdot 15+45 = -8\cdot 5x - 8\cdot(-15)$

$3\cdot(-5)\cdot x = -15x$

$-15x+45+45 = -40x+120$

$-15x+40x = 120-45-45$

$25x = 30 \,/:25$

$x = \frac{30}{25} = \frac{6}{5} = 1\frac{1}{5}$

PROVJERA

$3\cdot(-5\cdot\frac{6}{5}+15)+45 = -8\cdot(5\cdot\frac{6}{5}-15)$

$3\cdot(-6+15)+45 = -8\cdot(6-15)$

$3\cdot 9+45 = -8\cdot(-9)$

$27+45 = 72$

$72 = 72$ ✓

f) $2(2x-3)-1 = -9-3(-x+4)+10$

$4x-6-1 = -9+3x-12+10$

$4x-3x = -9-12+10+6+1$

$x = -21+17$

$\boxed{x=-4}$

g) $8-(-2x+4) = -2(3x-2)+(-x-1)$

$8+2x-4 = -6x+4-x-1$

$2x+6x+x = 4-1-8+4$

$9x = 8-9$

$9x = -1 \,/:9$

$\boxed{x=\frac{-1}{9}}$

h) $2(y+7) = -5(1-y)+19$

$2y+14 = -5+5y+19$

$2y-5y = -5+19-14$

$-3y = 19-19$

$-3y = 0 \,/:(-3)$

$y = \frac{0}{-3}$

$\boxed{y=0}$

DOMAĆA ZADAĆA, zad. 16. str. 134

$\frac{3x}{5} = \frac{3}{5}x$

16/ Riješi jednadžbe

a) $\frac{3}{4}x - \frac{3}{2} = \frac{3}{8} \quad / \cdot 8$ $\quad V(4,2,8) = 8$

$\overset{2}{\cancel{8}} \cdot \frac{3}{\cancel{4}_1}x - \overset{4}{\cancel{8}} \cdot \frac{3}{\cancel{2}_1} = \cancel{8} \cdot \frac{3}{\cancel{8}_1}$

$2 \cdot 3x - 4 \cdot 3 = 1 \cdot 3$

$6x - 12 = 3$

$6x = 3 + 12$

$6x = 15 \quad / : 6$

$\boxed{x = \frac{15}{6} = \frac{5}{2} = 2\frac{1}{2}}$

b) $\frac{2}{9} + \frac{5}{6}x - \frac{3}{2} = \frac{1}{3} \quad / \cdot 18$ $\quad V(9,6,2,3) = 18$

$\overset{2}{\cancel{18}} \cdot \frac{2}{\cancel{9}_1} + \overset{3}{\cancel{18}} \cdot \frac{5}{\cancel{6}_1}x - \overset{9}{\cancel{18}} \cdot \frac{3}{\cancel{2}_1} = \overset{6}{\cancel{18}} \cdot \frac{1}{\cancel{3}_1}$

$4 + 15x - 27 = 6$

$15x = 6 - 4 + 27$

$15x = 33 - 4$

$15x = 29 \quad / : 15$

$\boxed{x = \frac{29}{15} = 1\frac{14}{15}}$

c) $\frac{5}{6} - 2x + \frac{3}{2} = \frac{3}{4} - \frac{x}{3} \quad / \cdot 12$ $\quad \boxed{\frac{x}{3} = \frac{1}{3}x}$!!!

$\overset{2}{\cancel{12}} \cdot \frac{5}{\cancel{6}_1} - 12 \cdot 2x + \overset{6}{\cancel{12}} \cdot \frac{3}{\cancel{2}_1} = \overset{3}{\cancel{12}} \cdot \frac{3}{\cancel{4}_1} - \overset{4}{\cancel{12}} \cdot \frac{x}{\cancel{3}}$

$10 - 24x + 18 = 9 - 4x$

$-24x + 4x = 9 - 10 - 18$

$-20x = 9 - 28$

$-20x = -19 \quad / : (-20)$

$\boxed{x = \frac{-19}{-20} = \frac{19}{20}}$

d) $\frac{5}{3}x - \frac{1}{6} + x = \frac{4}{5}x - \frac{3}{2} \quad / \cdot 30$ $\quad (V(3,6,5,2) = 30)$

$\overset{10}{\cancel{30}} \cdot \frac{5}{\cancel{3}_1}x - \overset{5}{\cancel{30}} \cdot \frac{1}{6} + 30 \cdot x = \overset{6}{\cancel{30}} \cdot \frac{4}{\cancel{5}_1}x - \overset{15}{\cancel{30}} \cdot \frac{3}{2}$

$50x - 5 + 30x = 24x - 45$

$50x + 30x - 24x = -45 + 5$

$80x - 24x = -40$

$56x = -40 \quad / : 56$

$\boxed{x = \frac{-40}{56} = \frac{-5}{7}}$

e) $2\frac{1}{4}+2x-\frac{7}{9}-1\frac{1}{6}x=\frac{2x}{3}$ $\boxed{\frac{2x}{3}=\frac{2}{3}x}$

$\frac{9}{4}+2x-\frac{7}{9}-\frac{7}{6}x=\frac{2x}{3}\ /\cdot 36$

$^{9}\cancel{36}\cdot\frac{9}{\cancel{4}_1}+36\cdot 2x-{}^{4}\cancel{36}\cdot\frac{7}{\cancel{9}_1}-{}^{6}\cancel{36}\cdot\frac{7}{\cancel{6}_1}x={}^{12}\cancel{36}\cdot\frac{2x}{\cancel{3}}$

$81+72x-28-42x=24x$

$72x-42x-24x=-81+28$

$72x-66x=-53$

$6x=-53\ /:6$

$\boxed{x=\frac{-53}{6}=-8\frac{5}{6}}$

f) $\frac{3}{5}x+1\frac{5}{6}-\frac{2}{15}=x+1\frac{3}{4}$

$\frac{3}{5}x+\frac{11}{6}-\frac{2}{15}=x+\frac{7}{4}\ /\cdot 60$

5, 6, 15, 4	2
5, 3, 15, 2	2
5, 3, 15, 1	5
1, 3, 3, 1	3
1 1 1 1	

$2\cdot 2\cdot 5\cdot 3=60$

$^{12}\cancel{60}\cdot\frac{3}{\cancel{5}_1}x+{}^{10}\cancel{60}\cdot\frac{11}{\cancel{6}_1}-{}^{4}\cancel{60}\cdot\frac{2}{\cancel{15}_1}=60\cdot x+{}^{15}\cancel{60}\cdot\frac{7}{\cancel{4}_1}$

$36x+110-8=60x+105$

$36x-60x=105-110+8$

$-24x=113-110$

$-24x=3\ /:(-24)$

$\boxed{x=\frac{3}{-24}=-\frac{1}{8}}$

g) $\frac{5}{12}x-\frac{x}{8}+1\frac{2}{3}=2\frac{1}{2}+\frac{3x}{4}-\frac{7}{6}$

$\frac{5}{12}x-\frac{x}{8}+\frac{5}{3}=\frac{5}{2}+\frac{3x}{4}-\frac{7}{6}\ /\cdot 24$

$^{2}\cancel{24}\cdot\frac{5}{\cancel{12}_1}x-{}^{3}\cancel{24}\cdot\frac{x}{\cancel{8}_1}+{}^{8}\cancel{24}\cdot\frac{5}{\cancel{3}_1}={}^{12}\cancel{24}\cdot\frac{5}{\cancel{2}_1}+{}^{6}\cancel{24}\cdot\frac{3x}{\cancel{4}_1}-{}^{4}\cancel{24}\cdot\frac{7}{\cancel{6}_1}$

$10x-3x+40=60+18x-28$

$10x-3x-18x=60-28-40$

$10x-21x=60-68$

$-11x=-8\ /:(-11)$

$\boxed{x=\frac{-8}{-11}=\frac{8}{11}}$

h) $\frac{3x}{2}-\frac{1}{6}-1\frac{1}{4}x+1\frac{1}{3}-2x=\frac{4}{5}-x-\frac{3}{10}$

$\frac{3x}{2}-\frac{1}{6}-\frac{5}{4}x+\frac{4}{3}-2x=\frac{4}{5}-x-\frac{3}{10}\ /\cdot 60$

$90x-10-75x+80-120x=$

$=48-60x-18$

$90x-75x-120x+60x=48-18+10-80$

$150x-195x=58-98$

$-45x=-40\ /:(-45)$

$x=\frac{-40}{-45}$

$\boxed{x=\frac{8}{9}}$

$\boxed{\frac{x}{8}=\frac{1}{8}\cdot x}$ $\boxed{\frac{-x}{5}=-\frac{1}{5}x}$!!! ...