Řešení

1. DÚ - 8. ročník - MF

Termín odevzdání - středa 18. 9. 2019

Počítej s racionálními čísly:

1) $\left(\frac{3}{4}-\frac{2}{3}\right)\left(\frac{7}{8}-\frac{1}{2}\right)=\frac{9-8}{12}\cdot\frac{7-4}{8}=\frac{1}{12_4}\cdot\frac{3}{8}=\frac{1}{32}$

2) $\left(\frac{3}{4}-\frac{2}{3}\right)\cdot\frac{7}{8}-\frac{1}{2}=\frac{9-8}{12}\cdot\frac{7}{8}-\frac{1}{2}=\frac{1}{12}\cdot\frac{7}{8}-\frac{1}{2}=\frac{7}{96}-\frac{1}{2}=\frac{7-48}{96}=\frac{-41}{96}$

3) $\frac{7}{9}+\frac{2^1}{3_1}\cdot\frac{9^3}{4_2}-\frac{5}{6}=\frac{7}{9}+\frac{3}{2}-\frac{5}{6}=\frac{14+27-15}{18}=\frac{26}{18}=\frac{13}{9}$

4) $\dfrac{\frac{3}{4}+\frac{5}{6}}{\frac{2}{3}-\frac{1}{4}}=\dfrac{\frac{9+10}{12}}{\frac{8-3}{12}}=\frac{19}{12}\cdot\frac{12}{5}=\frac{19}{5}$

5) $\frac{2^1}{11_1}\cdot\frac{22^2}{35_7}\cdot\frac{5^1}{6_3}=\frac{2}{21}$

6) $\frac{3}{2}-\frac{1}{3}\cdot\frac{1}{4}+\frac{5}{12}=\frac{3}{2}-\frac{1}{3}\cdot\frac{4}{1}+\frac{5}{12}=\frac{6-16+5}{12}=\frac{-5}{12}$

7) $(2,1-0,05)\cdot(42,8:0,08)=2,05\cdot535=1096,75$

$\left(\frac{210}{100}-\frac{5}{100}\right)\cdot\left(\frac{428^{107}}{10}\cdot\frac{100^{10\,5}}{8_{4\,1}}\right)=\frac{205_{41}}{100_{20}}\cdot\frac{535^{107}}{1}=\frac{4387}{4}=1096\frac{3}{4}$

8) $0,1\cdot\left(10,2+0,4\right)-\left(0,1-0,8\right)=0,1\cdot\left(0,6-(-0,7)\right)=0,1\cdot1,3=0,13$

9) $\left(\frac{5}{6}+\frac{2}{3}\right)\cdot\frac{1}{2}=\frac{5+4}{6}\cdot\frac{1}{2}=\frac{9^3}{6_2}\cdot\frac{1}{2}=\frac{3}{4}$

10) $\left(\frac{2}{3}+\frac{5}{4}\right)-\left(\frac{7}{6}-\frac{1}{5}\right)=\frac{8+15}{12}-\frac{35-6}{30}=\frac{23}{12}-\frac{29}{30}=\frac{115-58}{60}=$

$=\frac{57}{}$

Řeš rovnice a proveď zkoušku

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

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

$6x-4 = 3x+2$ /$-3x+4$

$3x = 6$

$x = 2$

$L = \frac{3\cdot 2-2}{2} = \frac{6-2}{2} = \frac{4}{2} = 2$

$P = \frac{3\cdot 2+2}{4} = \frac{6+2}{4} = \frac{8}{4} = 2$

$L = P$

b) $2 - \frac{x}{3} = \frac{3}{4}$ /·12

$24 - 4x = 9$ /-24

$-4x = -15$ /$:(-4)$

$x = \frac{15}{4}$

$L = 2 - \frac{\frac{15}{4}}{3} = 2 - \left(\frac{15}{4}\cdot\frac{1}{3}\right) = 2 - \frac{5}{4} = \frac{8-5}{4} = \frac{3}{4}$

$P = \frac{3}{4}$

$L = P$

c) $\frac{x+17}{5} - \frac{3x-7}{4} = -2$ /·20

$4(x+17) - 5(3x-7) = -40$

$4x + 68 - 15x + 35 = -40$

$-11x + 103 = -40$ /-103

$-11x = -143$ /$:(-11)$

$x = 13$

$L = \frac{13+17}{5} - \frac{3\cdot 13-7}{4} = \frac{30}{5} - \frac{32}{4} = 6 - 8 = -2$

$L = P$

d) $\frac{5-x}{8} = \frac{18-5x}{12}$ /·24

$3(5-x) = 2(18-5x)$

$15 - 3x = 36 - 10x$ /$+10x-15$

$7x = 21$ /$:7$

$x = 3$

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

$P = \frac{18-5\cdot 3}{12} = \frac{18-15}{12} = \frac{3}{12} = \frac{1}{4}$