MATEMATIKA 7.B

13. - 20. 5. 2020

ŘEŠENÍ

1) a) $\frac{1}{2} \overset{\cdot 35}{;} \frac{17}{10} \overset{\cdot 7}{;} \frac{4}{5} \overset{\cdot 14}{;} \frac{5}{7} \overset{\cdot 10}{;} \frac{4}{35} \overset{\cdot 2}{}$

$\downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow$

$\frac{35}{70} \quad \frac{119}{70} \quad \frac{56}{70} \quad \frac{50}{70} \quad \frac{8}{70}$

$$\frac{4}{35} < \frac{1}{2} < \frac{5}{7} < \frac{4}{5} < \frac{17}{10}$$

b) $\frac{8}{15} \overset{\cdot 4}{;} \frac{1}{4} \overset{\cdot 15}{;} \frac{5}{6} \overset{\cdot 10}{;} \frac{3}{5} \overset{\cdot 12}{;} \frac{19}{30} \overset{\cdot 2}{}$

$\downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow$

$\frac{32}{60} \quad \frac{15}{60} \quad \frac{50}{60} \quad \frac{36}{60} \quad \frac{38}{60}$

$$\frac{5}{6} > \frac{19}{30} > \frac{3}{5} > \frac{8}{15} > \frac{1}{4}$$

2) a) $\frac{640}{800} \overset{:10}{=} \frac{64}{80} \overset{:4}{=} \frac{16}{20} \overset{:4}{=} \frac{4}{5}$

b) $\frac{350}{700} \overset{:350}{=} \frac{1}{2}$

c) $\frac{2500}{7250} \overset{:10}{=} \frac{250}{725} \overset{:25}{=} \frac{10}{29}$

3) a) $\frac{50}{60} \overset{:10}{=} \frac{5}{6}$ (50 : 10 = 5, 60 : 10 = 6)

b) $\frac{7}{9} \overset{\cdot 13}{=} \frac{91}{117}$ (7 · 13 = 91, 9 · 13 = 117)

c) $\frac{34}{12} \overset{:2}{=} \frac{17}{6}$ (34 : 2 = 17, 12 : 2 = 6)

d) $\frac{24}{36} \overset{:12}{=} \frac{2}{3}$ (24 : 12 = 2, 36 : 12 = 3)

e) $\frac{11}{5} \overset{\cdot 4}{=} \frac{44}{20}$ (11 · 4 = 44, 5 · 4 = 20)

f) $\frac{400}{140} \overset{:20}{=} \frac{20}{7}$ (400 : 20 = 20, 140 : 20 = 7)

4) $\frac{25}{8}$ | $\frac{33}{7}$ | $\frac{7}{3}$ | $\frac{71}{13}$ | $\frac{19}{10}$ | $\frac{27}{8}$

↓ ↓ ↓ ↓ ↓ ↓

$3\frac{1}{8}$ $4\frac{5}{7}$ $2\frac{1}{3}$ $5\frac{6}{13}$ $1\frac{9}{10}$ $3\frac{3}{8}$

$$\frac{19}{10} < \frac{7}{3} < \frac{25}{8} < \frac{27}{8} < \frac{33}{7} < \frac{71}{13}$$

5) součet: $\frac{5}{12} + \frac{1}{4} \overset{\cdot 3}{=} \frac{5+3}{12} = \frac{8}{12} \overset{:4}{=} \frac{2}{3}$

rozdíl: $\frac{5}{12} - \frac{1}{4} = \frac{5-3}{12} = \frac{2}{12} \overset{:2}{=} \frac{1}{6}$

obvod: $\frac{2}{3} \overset{\cdot 2}{-} \frac{1}{6} = \frac{4-1}{6} = \frac{3}{6} = \frac{1}{2}$

Součet je větší o $\frac{1}{2}$.

6) a) $\frac{1}{4}$ z $x = 15\,m$

$x = (15 : 1) \cdot 4$

$x = 60\,m$

b) $\frac{3}{8}$ z $x = 213\,kg$

$x = (213 : 3) \cdot 8$

$x = 568\,kg$

výpočet jednoho ořechu a celek má 8 ořechů

7) a) $5 \cdot \frac{2}{3} + 4 \cdot \frac{3}{2} =$

$= \frac{5}{1} \cdot \frac{2}{3} + \frac{\cancel{4}^{2}}{1} \cdot \frac{3}{\cancel{2}_{1}} = \underbrace{\frac{10}{3} + \frac{6^{\cdot 3}}{1_{\cdot 3}}} = \frac{10+18}{3} = \frac{28}{3} =$

$= \underline{\underline{9\frac{1}{3}}}$

↓ nebo šlo udělat přes smíšená čísla

$3\frac{1}{3} + 6 = 9\frac{1}{3}$

b) $8 \cdot \frac{15}{16} - 2 \cdot \frac{3}{4} = \frac{\cancel{8}^{1}}{1} \cdot \frac{15}{\cancel{16}_{2}} - \frac{\cancel{2}^{1}}{1} \cdot \frac{3}{\cancel{4}_{2}} =$

$= \frac{15}{2} - \frac{3}{2} = \frac{12}{2} = \underline{\underline{6}}$

c) $4 \cdot \left(\frac{1^{\cdot 3}}{2_{\cdot 3}} + \frac{2^{\cdot 2}}{3_{\cdot 2}} + \frac{5}{6} \right) = \frac{4}{1} \cdot \frac{3+4+5}{6} = \frac{4}{1} \cdot \frac{\overset{2}{\cancel{12}}}{\cancel{6}_{1}} =$

$= 4 \cdot 2 = \underline{\underline{8}}$

d) $\left(\frac{2^{\cdot 6}}{3_{\cdot 6}} + \frac{4^{\cdot 2}}{9_{\cdot 2}} + \frac{11}{18} \right) : 3 = \frac{12+8+11}{18} : \frac{3}{1} =$

$= \frac{31}{18} \cdot \frac{1}{3} = \underline{\underline{\frac{31}{54}}}$

8) a) $\frac{27^{\cdot 25}}{4_{\cdot 25}} = \frac{675}{100} = \underline{\underline{6{,}75}}$

1. způsob je rozšířit na zlomek se jmenovatelem 10, 100, 1000, ... (desetinný zlomek)

b) $\frac{531^{\cdot 5}}{20_{\cdot 5}} = \frac{2655}{100} = \underline{\underline{26{,}55}}$

c) $\frac{777^{\cdot 25}}{40_{\cdot 25}} = \frac{19425}{1000} = \underline{\underline{19{,}425}}$

d) $\frac{73^{\cdot 2}}{50_{\cdot 2}} = \frac{146}{100} = \underline{\underline{1{,}46}}$

e) $\frac{83}{10} = \underline{8,3}$

f) $\frac{37}{32} = \underline{1,15625}$

2. způsob je dělením čitatele jmenovatelem

$37,0 : 32 = 1,15625$
50
180
200
080
160
00

g) $\frac{14}{9} = \underline{1,\overline{5}}$ ← 1 zv. periodické číslo

$14,0 : 9 = 1,\overline{5}$
50
50

h) $\frac{5}{11} = \underline{0,\overline{45}}$

$5,0 : 11 = 0,454$
60
50
60

9) a) $0,125 = \frac{125}{1000} \overset{:25}{=} \frac{5}{40} = \underline{\frac{1}{8}}$

b) $0,14 = \frac{14}{100} \overset{:2}{=} \underline{\frac{7}{50}}$

c) $6,15 = \frac{615}{100} \overset{:5}{=} \frac{123}{20} = \underline{6\frac{3}{20}}$

10) a) $21 \cdot \frac{2}{3} \cdot (-1{,}25) - 0{,}2 : (-0{,}4) =$

$= \frac{\cancel{21}^{7}}{1} \cdot \frac{\cancel{2}^{1}}{\cancel{3}_{1}} \cdot \left(-\frac{\cancel{125}^{5}}{\cancel{100}_{\cancel{50}_{2}}}\right) + \frac{1}{2} = -\frac{35}{2} + \frac{1}{2} =$

$= -\frac{34}{2} = \underline{\underline{-17}}$

b) $\frac{\frac{\cancel{8}^{1}}{\cancel{15}_{3}} \cdot \frac{\cancel{5}^{1}}{\cancel{16}_{2}}}{\frac{5}{18} : \left(-\frac{5}{9}\right)} = \frac{\frac{1}{6}}{\frac{\cancel{5}^{1}}{\cancel{18}_{2}} : \left(-\frac{\cancel{9}^{1}}{5_{1}}\right)} = \frac{\frac{1}{6}}{-\frac{1}{2}} =$

$= -\frac{1 \cdot \cancel{2}^{1}}{1 \cdot \cancel{6}_{3}} = \underline{\underline{-\frac{1}{3}}}$

c) $\frac{(5-\overset{-2}{\cancel{7}}) \cdot (-1)}{8 + (-5)} - \frac{\cancel{11}^{1}}{\cancel{3}_{1}} \cdot \frac{\cancel{9}^{3}}{\cancel{22}_{2}} = \frac{2^{\cdot 2}}{3_{\cdot 2}} - \frac{3^{\cdot 3}}{2_{\cdot 3}} =$

$= \frac{4-9}{6} = \underline{\underline{-\frac{5}{6}}}$