

Řešení - PZ Matematika 211 - SC10

1)
$$\frac{18 \text{ trček} \dots 4500,-}{12 \text{ trček} \dots x,-}$$

$$x = \frac{12 \cdot 4500}{18} = 9000 : 3 = \boxed{3000} \Rightarrow \textcircled{A}$$

2)
$$\frac{(x+5) \cdot 5 - 5}{5} = 9 \quad | \cdot 5$$

$$5x + 25 - 5 = 45$$

$$5x = 25$$

$$\boxed{x = 5} \Rightarrow \textcircled{C}$$

3) Lenka --- 18 minut / 1 kob
 Mylka --- 6 minut / 1 kob
 Pačka --- 3 minuty / 1 kob

Pačka oběhne rybník za 12 minut
 $12 : 3 = \textcircled{4x} \Rightarrow \textcircled{B}$

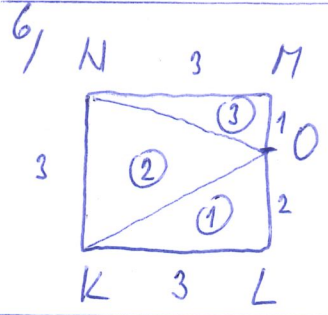
4)
$$\frac{5,4 \text{ km} \dots 42 \text{ cm}}{54000 \text{ cm} \dots 42 \text{ cm}}$$

$$\sqrt{54000} : 42 = 4500$$

$$36000$$

Meritto mepy je $\boxed{1 : 4500} \Rightarrow \textcircled{C}$

5)
$$\frac{25 \cdot (-5)}{-5} - \frac{3 \cdot 0,5}{6} + \frac{1,5 \cdot \frac{1}{2}}{3,2} - 5 \sqrt{\frac{0,64}{9}} = -5 - 6 + 3 - 4 = \boxed{-12} \Rightarrow \textcircled{D}$$



① $S_{\Delta KLO} = \frac{3 \cdot 2}{2} = 3 \text{ cm}^2$
 ② $S_{\Delta KOL} = 3^2 - 3 - 1,5 = 4,5 \text{ cm}^2$
 ③ $S_{\Delta KON} = \frac{3 \cdot 1}{2} = 1,5 \text{ cm}^2$

Pomer : $3 : 4,5 : 1,5 \quad | \cdot 2$
 $6 : 9 : 3 \quad | : 3$
 $\boxed{2 : 3 : 1} \Rightarrow \textcircled{A}$

4) $a : b : c = 9 : 5 : 4$
 $a + c = 65 \text{ cm}$

$a + c = 65$
 $\frac{a}{c} = \frac{9}{4} \Rightarrow a = \frac{9c}{4}$

$V = abc$
 $V = 45 \cdot 25 \cdot 25 \text{ cm}^3$
 $V = 225000 \text{ cm}^3 = \boxed{22,5 \text{ dm}^3}$

$\frac{9c}{4} + c = 65 \quad | \cdot 4$
 $13c = 260 \Rightarrow \boxed{c = 20}, \boxed{a = 45}, \boxed{b = 25}$

\textcircled{B}

- 8) m.a - všechna místa k sezení
 4b - plně obsazené 4 vagony k stádku \Rightarrow zůstatko $(m-4)b$

$$\boxed{m \cdot a + 4b + \frac{(m-4)b}{3}} \Rightarrow \textcircled{A}$$

9) $1011 = 2\text{cm} = 20\text{mm}$

$$3,8 - (-2\frac{1}{5}) = \frac{38}{10} + \frac{11}{5} = \frac{60}{10} = 6 \text{ jednotek} \rightarrow 6 \cdot 2 = 12\text{cm} = \boxed{12\text{mm}}$$

\downarrow
 \textcircled{D}

10) $S = 6 \cdot a \cdot a = 96\text{dm}^2$
 $a^2 = 16\text{dm}^2$
 $\boxed{a = 4\text{dm}}$

$$V = a \cdot a \cdot a = 4 \cdot 4 \cdot 4\text{dm}^3 = \boxed{64\text{dm}^3} \text{ - velká kyčle}$$

Objem malé kyčle: $64 : 8 = \boxed{8\text{dm}^3} \Rightarrow \textcircled{D}$

11) $\sigma = 100\text{m}$
 $a = 30\text{m}$
 $b = ?$
 $S = ?$

$$\sigma = 2(a+b)$$

$$100 = 2(30+b)$$

$$\boxed{b = 20\text{m}}$$

$$S = a \cdot b$$

$$S = 30 \cdot 20\text{m}^2$$

$$\boxed{S = 600\text{m}^2} \Rightarrow \textcircled{C}$$

12) $X [3; \frac{11}{4}]$

c) h: $y = \frac{\frac{3}{4}x + 6}{3} = \frac{\frac{3}{4} \cdot 3 + 6}{3} = \frac{\frac{9}{4} + 6}{3} = \frac{\frac{33}{4}}{3} = \frac{33}{12} = \boxed{\frac{11}{4}} \checkmark \Rightarrow \textcircled{C}$

13) $\frac{x^2 - x - 6}{x^2 - 5x^2 + 6x} = \frac{(\frac{3}{2})^2 - \frac{3}{2} - 6}{(\frac{3}{2})^2 - 5(\frac{3}{2})^2 + 6 \cdot \frac{3}{2}} = \frac{\frac{9}{4} - \frac{3}{2} - 6}{\frac{27}{4} - \frac{45}{4} + 9} = \frac{\frac{9-6-24}{4}}{\frac{27-45+36}{4}} = \frac{-21}{9} = \frac{-7}{3} = \boxed{-\frac{14}{3}} \Rightarrow \textcircled{D}$

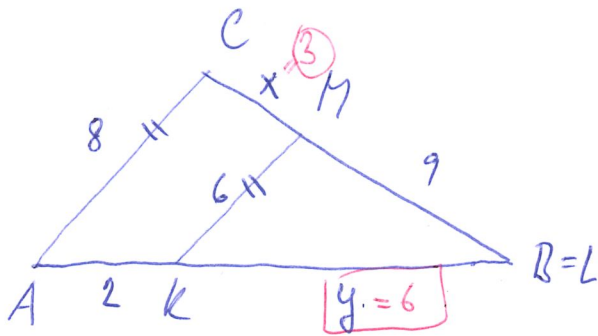
14) $\frac{3}{4}x - \frac{1}{3}(\frac{8}{5}x + 3) = 0,3 \Rightarrow \frac{3}{4}x - \frac{8}{15}x - 1 = \frac{3}{10} \quad | \cdot 60$

$$45x - 32x - 60 = 18$$

$$13x = 78$$

$$\boxed{x = 6} \Rightarrow \textcircled{C}$$

15)



$|KL| = ?$
 $|CL| = ?$

$\left. \begin{array}{l} |KL| = y = 6 \text{ cm} \\ |CL| = x = 3 \text{ cm} \end{array} \right\} \Rightarrow \textcircled{B}$

Podobnost trojúhelníků :

$$\frac{9}{6} = \frac{9+x}{8} \quad | \cdot 24$$

$$36 = 24 + 3x$$

$$9 = 3x$$

$$\boxed{x = 3}$$

$$\frac{9}{6} = \frac{y+2}{8} \quad | \cdot 24$$

$$4y = 3y + 6$$

$$\boxed{y = 6}$$

16) $f: y = 2x + 3 \rightarrow$ průsečík osu $x \Rightarrow$ $y = 0$

$0 = 2x + 3 \Rightarrow 2x = -3 \Rightarrow \boxed{x = -\frac{3}{2}} \Rightarrow \left[-\frac{3}{2}; 0\right] \Rightarrow \textcircled{D}$

17) $\begin{array}{l} \uparrow 100\% \dots 0,24 \text{ m} \\ \uparrow 125\% \dots x \text{ m} \end{array}$

$$x = \frac{5 \cdot 125 \cdot 0,24}{100} = \frac{5 \cdot 0,24}{4} = \frac{12}{4} = 0,3 \text{ m} = 300 \text{ mm} = \boxed{3 \cdot 10^2 \text{ mm}}$$

$\downarrow \textcircled{B}$

18) Den z odměny ... 1400,- ... 2%

4000,- ... 100% \rightarrow $\begin{array}{l} \uparrow 4000, \dots 35\% \\ \uparrow x, \dots 100\% \end{array}$

$$x = \frac{100 \cdot 4000}{35} = 40000 : 35 = \boxed{20000,-}$$

$\boxed{\text{Zisk firmy činí } 20000,-}$

$\downarrow \textcircled{A}$