

1) 4,4,1 → eiferný součet je 12 ⇒ nebude obsahovat 2 ⇒ A

2) $3x - 10y = -1$
 $\frac{2}{7}x + \frac{1}{14}y = 4 \quad | \cdot 14$

$3x - 10y = 1$
 $4x + y = 56 \quad | \cdot 10$

$3x - 10y = 1$
 $40x + 10y = 560$

$43x = 559$
 $x = 13$
 $y = 4$

[13; 4] → B

3) $\begin{array}{ccc} \uparrow 24\% & \dots & 42 \uparrow \\ 100\% & \dots & x \end{array}$ $x = \frac{100 \cdot 42}{24} = 100 \cdot 2 = 200 \Rightarrow C$

4) Vnitřní dohyk → $d = k \cdot r_1 - r_2 = 5,4 - 3,1 = 2,3 \text{ cm} \Rightarrow D$

5) Záhon ... $S_1 = 3 \cdot 6 = 18 \text{ m}^2$

Chodce ... $S_2 = 1,5^2 = 2,25 \text{ m}^2$

1 korek ... $\frac{3}{5}$ odměrky ... $2,25 \text{ m}^2$

$\frac{1}{5}$ odměrky ... $2,25 : 3 = 0,75 \text{ m}^2$

$\frac{5}{5}$ odměrky ... $0,75 \cdot 5 = 3,75 \text{ m}^2$

Počet odměrek: $x = 18 : 3,75 = \frac{1800 : 375}{100} = 4,8 = 5 \Rightarrow B$

6) $\begin{array}{ccc} \uparrow 40\% & \dots & 36 + 12 = 48 \uparrow \\ 100\% & \dots & x \end{array}$
 $x = \frac{100 \cdot 48}{40} = 10 \cdot 12 = 120$

C: $120 - 48 = 72$

poměr: A:B:C
 $36:12:42$
 $3:1:6 \Rightarrow B$

7) $14\frac{1}{4} : 4\frac{3}{4} = \frac{54}{4} : \frac{19}{4} =$
 $= \frac{54}{4} \cdot \frac{4}{19} = \frac{3x}{19} \Rightarrow B$

8) $\left. \begin{array}{l} |AB| = 5 \text{ cm} \\ |AC| = |BC| = 5 \text{ cm} \end{array} \right\} \Delta ABC \text{ je rovnostranný (všechny úhly } 60^\circ)$

- ΔDBC je rovnoramenný - ramena DB, BC

- $\angle DBC = 180^\circ - 60^\circ = 120^\circ$

- $\alpha = \frac{180^\circ - 120^\circ}{2} = 30^\circ \Rightarrow$ (B)

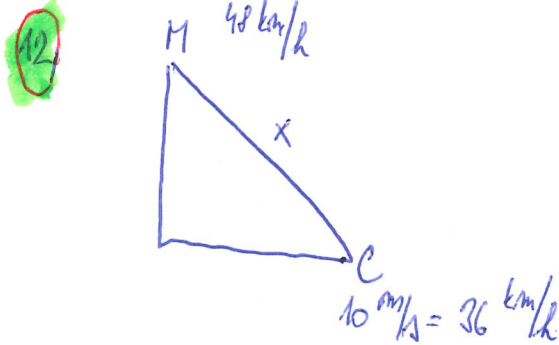
9) $D[1;3] \Rightarrow$ ověření $y=3x$ $y=\frac{3}{x}$
 $3=3 \cdot 1 \checkmark$ $3=\frac{3}{1} \checkmark \Rightarrow$ (C)

10)

? $+ 4x^2 - y^2 - 5xy + 2x + 3y = 4x^2 - 2y^2 - 3xy + 3x + y$

? $= -y^2 + 2xy + x - 2y \Rightarrow$ (B)

11) Střed kružnice opsané losi v bodě $[-1;1] \rightarrow$ má od všech bodů vzdálenost 2 jednotky $\Rightarrow r=2 \Rightarrow \sigma = 2\pi r = 4\pi \Rightarrow$ (B)



$10 \text{ min} = \frac{1}{6} \text{ h} \Rightarrow$ M ujede $48 \cdot \frac{1}{6} = 8 \text{ km}$
 C ujede $36 \cdot \frac{1}{6} = 6 \text{ km}$

$x^2 = 6^2 + 8^2$

$x^2 = 36 + 64$

$x^2 = 100 \Rightarrow x = \sqrt{100} = 10 \text{ km} \Rightarrow$ (A)

13) $x + y = 40 \quad | \cdot (-200)$

$500x + 200y = 21200$

$-200x - 200y = -14000$
 $500x + 200y = 21200 \quad | \oplus$

$300x = 7200 \quad | :300$

$x = 24$

$y = 46 \Rightarrow$ (C)

14) $f: y = \frac{3}{x}$

$f(-\frac{1}{3}) = \frac{3}{-\frac{1}{3}} = -9$

$f(1) = \frac{3}{1} = 3$

$f(\frac{1}{3}) = 9 \Rightarrow$ (C)

$f(2) = \frac{3}{2}$

15

(J)	(B)	(P)	
1500	1200	900	:100
15	12	9	:3
5 : 4 : 3			

↓
C

V kešon k 300 balíčkov byb 5 jablák, 4 banány a 3 pomeranče.

16

$$V = 8 \cdot 3 \cdot 2 = 48 \text{ dm}^3 = 48000 \text{ ml}$$

$$x = \frac{48000}{50} = 960 \Rightarrow \text{C}$$

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divok je k-c, v procentach pek

$$\left(1 - \frac{c}{k}\right) \cdot 100 = \frac{k-c}{k} \cdot b \Rightarrow \text{B}$$

18

$$4 + 5 + 6 = 15 \text{ d}$$

$$15 \text{ d} \dots 2,25 \text{ m}$$

$$1 \text{ d} \dots 2,25 : 15 = 0,15 \text{ m}$$

$$4 \text{ d} \dots 4 \cdot 0,15 \text{ m} = 0,6 \text{ m}$$

$$5 \text{ d} \dots 5 \cdot 0,15 \text{ m} = 0,75 \text{ m}$$

$$0,6 + 0,75 = 1,35 \text{ dm} = 13,5 \text{ cm} \Rightarrow \text{B}$$

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$$\frac{12x + 3x - 4 - 1}{16 + 8 + 1} = 1 \quad | \cdot 25$$

$$15x - 5 = 25$$

$$15x = 30$$

$$x = 2 \Rightarrow \text{C}$$

20

$$x^x + y^y = 2^2 + 3^3 = 4 + 27 = 31$$

$$x^y + y^x = 2^3 + 3^2 = 8 + 9 = 17$$

$$31 - 17 = 14 \Rightarrow \text{D}$$

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(B) → RŮZNĚ DLOUHÉ ČÁSTI < $\frac{1}{j}t \rightarrow$ každá strana neprobí vrchol
 $\frac{2}{j}t \rightarrow$ b vrchol

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$$J \dots \frac{2}{5} \cdot 21000 = \frac{2}{5} \cdot 21000 = 8400$$

$$M \dots x$$

$$H \dots x + 600$$

$$\text{Dobromed} \dots 21000$$

$$x + x + 600 + 8400 = 21000$$

$$2x = 12000$$

$$x = 6000 \rightarrow \text{MARTINA} \Rightarrow \text{C}$$

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$$\begin{array}{l} \text{skriň} \dots x \\ \text{konob.} \dots \frac{3}{5}x \end{array}$$

$$x = \frac{3}{5}x + 68$$

$$\frac{2}{5}x = 68$$

$$2x = 340$$

$$x = 170 \text{ cm} \Rightarrow \text{C}$$

24

$$\sqrt{900} = 30 \text{ m} = a$$

$$u^2 = a^2 + a^2 = 30^2 + 30^2 = 1800$$

$$u = \sqrt{1800} \text{ m} \Rightarrow \text{C}$$

25

$$m_1(t-t_1) = m_2(t_2-t)$$

$$t_2 > t > t_1$$

$$2(t-40) = 3(100-t)$$

$$2t - 80 = 300 - 3t$$

$$5t = 380$$

$$t = 76^\circ \text{C} \Rightarrow \text{C}$$

26

$$36 \text{ km/h} = 10 \text{ m/s}$$

$$s = s_1 - s_2$$

$$s_0 = v_1 t - v_2 t$$

$$s_0 = 10t - 8t$$

$$s_0 = 2t$$

$$t = 15 \text{ s} \Rightarrow \text{C}$$

27

$$y = ax + b$$

$$M: 45 = -3a + b$$

$$N: -25 = 0.5a + b$$

$$4 = -3.5a$$

$$a = -2 \Rightarrow b = -1.5 \Rightarrow y = -2x - 1.5 \Rightarrow \text{A}$$

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$$\text{Tapeta} - S_1 = 4 \cdot 1.5 \text{ m}^2 = 12 \text{ m}^2 = 120 \text{ dm}^2$$

$$\text{Krychle} - S_2 = 6 \cdot 9 \cdot 9 = 6 \cdot 40^2 = 9600 \text{ cm}^2 = 96 \text{ dm}^2$$

$$\text{Zbyde } 24 \text{ dm}^2 \Rightarrow \frac{1}{5} \cdot 2 (20 \text{ dm}^2) \Rightarrow 20\% \Rightarrow \text{B}$$

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$$\begin{array}{l} \boxed{2000 \text{ kg br.}} \rightarrow \begin{array}{l} 2 \text{ br.} \dots 2 \cdot 2.5 = 5 \text{ h} \\ x \text{ br.} \dots 2x \end{array} \end{array}$$

$$x = \frac{2.5}{2} = 5 \text{ br.} \Rightarrow \text{B}$$

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$$\frac{b + \sqrt{\frac{9}{4} + b}}{a^2 - b^2} = \frac{\frac{1}{4} + \sqrt{\frac{5}{16} + \frac{1}{4}}}{\frac{25}{16} - \frac{1}{16}} =$$

$$= \frac{\frac{1}{4} + \sqrt{\frac{9}{16}}}{\frac{24}{16}} = \frac{\frac{1}{4} + \frac{3}{4}}{\frac{3}{2}} = \frac{1}{\frac{3}{2}} =$$

$$= \frac{2}{3} \Rightarrow \text{A}$$