

Résolvi - didaktický test č.2 → DIDAKTIS 200

1) $\frac{1}{10} \cdot 4 = \frac{1}{10} \cdot 4 = \frac{4}{10}$

$\frac{10}{4} - \frac{4}{10} = \frac{100 - 16}{40} = \frac{84}{40}$

2) a) $30 \cdot 0,3^2 = 30 \cdot 0,09 = 2,7$

b) $\frac{\sqrt{2 \cdot (0,25 + 0,25)}}{10^2} = \frac{\sqrt{2 \cdot 0,5}}{100} = \frac{\sqrt{1}}{100} = \frac{1}{100} = \frac{1}{50} = 0,02$

3) a) $\frac{5}{8} - \frac{1}{8} \cdot 0,2 = \frac{5}{8} - \frac{1}{8} \cdot \frac{2}{10} = \frac{5}{8} - \frac{1}{40} = \frac{24}{40} = \frac{3}{5}$

b) $\frac{14}{\frac{2}{5} \cdot 3 - \frac{1}{35}} - 14,2 = \frac{14}{\frac{6}{5} - \frac{1}{35}} - 14,2 = \frac{14}{\frac{42-1}{35}} - 14,2 = \frac{14}{\frac{41}{35}} - 14,2 = \frac{14 \cdot 35}{41} - 14,2 = 0,8 = \frac{4}{5}$

4) a) $(m-2)^2 - (2-m)(m-2) = m^2 - 4m + 4 - (2m - 4 - m^2 + 2m) = m^2 - 4m + 4 - 2m + 4 + m^2 - 2m = 2m^2 - 8m + 8 = 2(m^2 - 4m + 4) = 2(m-2)^2$

b) $\frac{3m-1}{3} - \frac{3m-2}{6} + \frac{m}{2} = \frac{2(3m-1) - (3m-2) + 3m}{6} = \frac{6m-2-3m+2+3m}{6} = \frac{6m}{6} = m$

5) a) $0,2 \cdot \frac{x}{5} = -2$

$\frac{2}{10} = \frac{1}{5}$

$\frac{x}{25} = -2$

$x = -50$

b) $\frac{y+1}{2} - 2y = 1 - \frac{y}{4} \quad | \cdot 4$

$2(y+1) - 4y = 4 - y$

$2y + 2 - 4y = 4 - y$

$-2y + 2 = 4 - y$

$-y = 2$
 $y = -2$

6) Leihar ... x ... 6,-

Feira ... x+40 ... 46,-

$6 \cdot (x+40) + 6x = 312$

$6x + 240 + 6x = 312$

$12x = 72$

$x = 6$

6.1. $5 \cdot 46 + 5 \cdot 6 = 230 + 30 = 260,-$

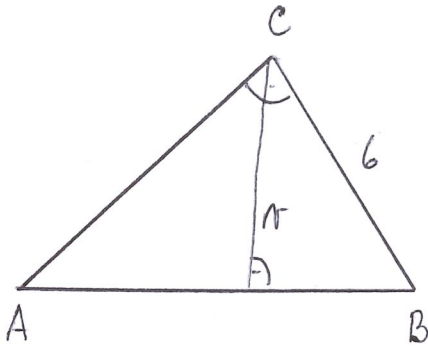
6.2. $\uparrow 100\% \dots 46+6=52,- \uparrow$
 $\uparrow x\% \dots 6,- \uparrow$

$x = \frac{6 \cdot 100}{52} = 600 : 52 = 11,53 = 11,5\%$

6.3. $6 \cdot 46 = 276,-$

80
280
260

4)



$$a) S_{\Delta} = 24 \text{ cm}^2 = \frac{6 \cdot |AC|}{2}$$

$$48 = 6 \cdot |AC|$$

$$|AC| = 8 \text{ cm}$$

$$b) |AB|^2 = 6^2 + 8^2 = 36 + 64 = 100$$

$$|AB| = \sqrt{100} = 10 \text{ cm}$$

$$c) S_{\Delta} = \frac{|AB| \cdot r}{2} \Rightarrow r = \frac{2 \cdot S_{\Delta}}{|AB|} = \frac{2 \cdot 24}{10} \text{ cm} = 4,8 \text{ cm}$$

8)

$$a) 1,5 \text{ hl} - 120 \text{ dm}^3 = x \text{ m}^3$$

$$150 \text{ l} - 120 \text{ dm}^3 = x \text{ m}^3$$

$$30 \text{ dm}^3 = 0,03 \text{ m}^3$$

$$b) x \text{ cm} - 21 \text{ dm} = 0,1 \text{ m}$$

$$x \text{ cm} = 10 \text{ cm} + 2010 \text{ cm}$$

$$x = 2020 \text{ cm}$$

$$c) 2,2 \text{ h} - x \text{ min} = 1 \text{ h } 39 \text{ min} \Rightarrow 99 \text{ minut}$$

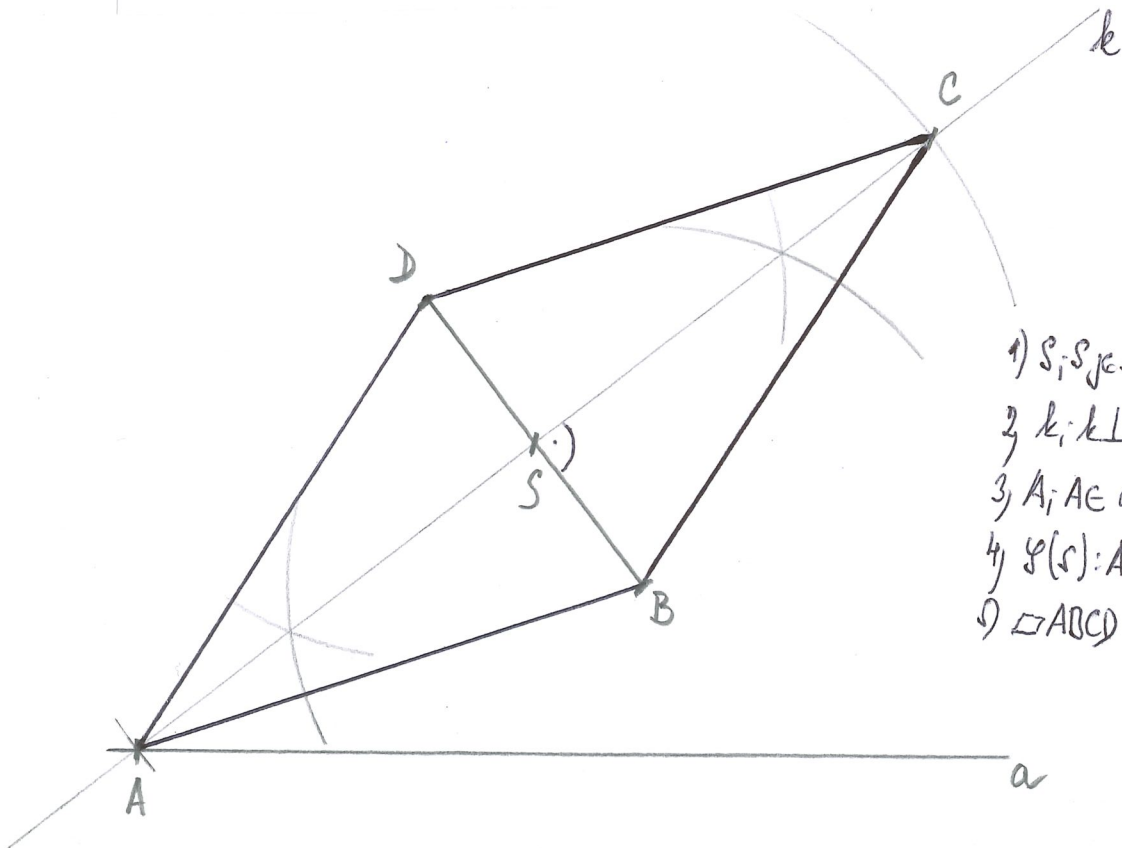
$$\downarrow$$

$$120 + 0,2 \cdot 60 = 132 \text{ minut}$$

$$x \text{ min} = 132 - 99$$

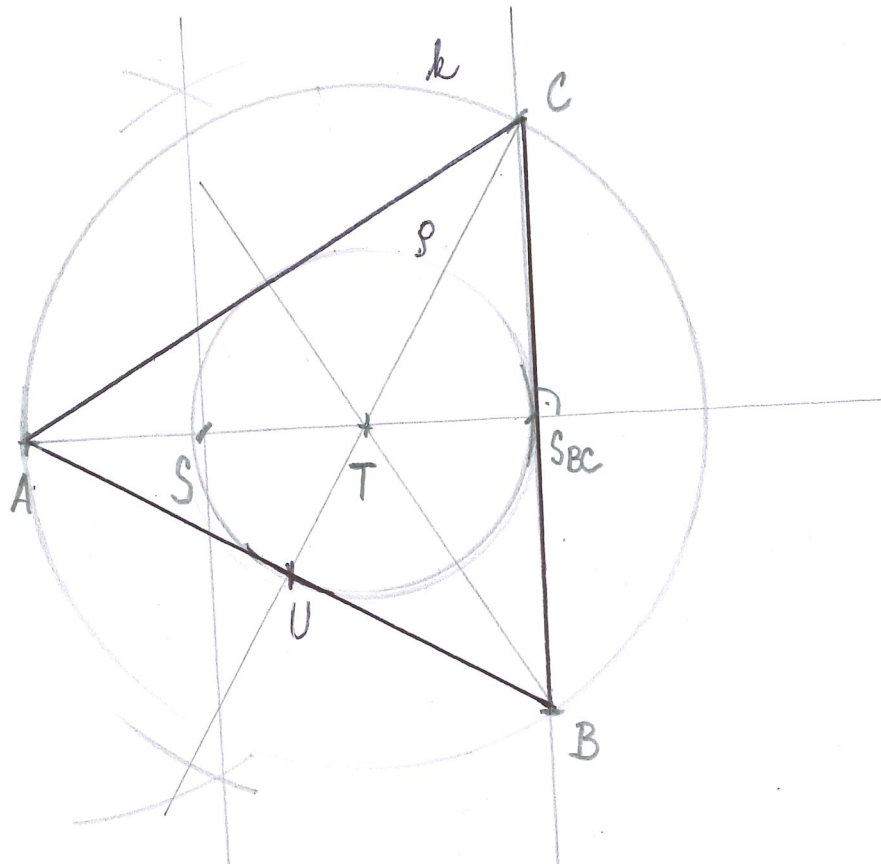
$$x = 33 \text{ minut}$$

9)



- 1) $S; S$ jest b\u0119d BD
- 2) $k; k \perp BD \wedge S \in k$
- 3) $A; A \in a \wedge k$
- 4) $f(s): A \rightarrow C$
- 5) $\square ABCD$

b)



- Rovnostrany $\Delta \rightarrow$ sphyje T ; střed kružnice opsané i vepřené. Poměr délek tečnic v poměru $\frac{2}{3} : \frac{1}{3} \rightarrow |AT| = \frac{2}{3} t_9$; $|TS_{bc}| = \frac{1}{3} t_9$

11)

$200 - 98 = 102$

Čokoláda	...	$x + \frac{2}{5}x = \frac{4}{5}x$	$35,-$ $42,-$ $25,-$
Sušinky	...	$\frac{4}{5}x + \frac{1}{5} \cdot \frac{4}{5}x = \frac{4}{5}x + \frac{4}{25}x = \frac{42}{25}x$	
Mléko	...	x	
Celkem	...	$102,-$	

$\frac{4}{5}x + \frac{42}{25}x + x = 102 \quad | \cdot 25$

$35x + 42x + 25x = 2550$

$102x = 2550$

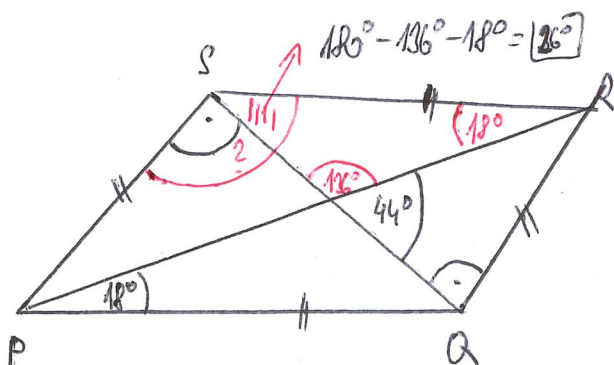
$x = \frac{2550}{102} = 25,-$

11.1. $2 \cdot 42 = 84$; $84 < 98 \Rightarrow$ **(ANO)**

11.2. Nebyla \rightarrow cca o $\frac{2}{5}$ kusů by bylo $42,-$; ale je $42,- \Rightarrow$ **(NE)**

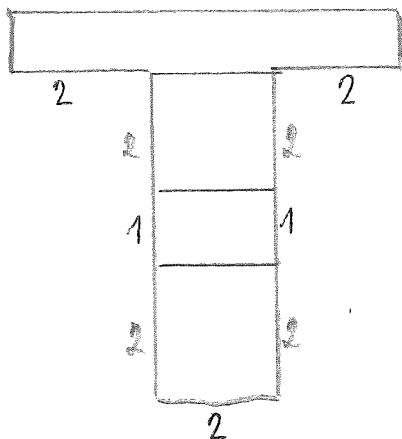
11.3. $\frac{1}{8} \cdot 200 = 200 \cdot \frac{1}{8} = 25,- \rightarrow$ **(ANO)**

12)



$|x_{PSR}| = 90^\circ + 26^\circ = 116^\circ \Rightarrow$ **(B)**

13)



Rozeřný hřebek: 2 dm; 2 dm; 1 dm

$$V = 2 \cdot 2 \cdot 1 \text{ dm}^3 = \boxed{4 \text{ dm}^3 \Rightarrow A}$$

14) $S_{\square} = 2 \cdot 2 \text{ dm}^2 = \boxed{4 \text{ dm}^2 \Rightarrow A}$

15) a) $\begin{array}{l} \uparrow 20000,- \dots 100\% \uparrow \\ \uparrow 24000,- \dots x\% \uparrow \end{array}$

$$x = \frac{24000 \cdot 100}{20000} = 240 = 120\% \Rightarrow$$

$$\Rightarrow \text{úrok činí } \boxed{20\% \Rightarrow B}$$

b) $\begin{array}{l} \uparrow 153,- \dots 95\% \uparrow \\ \uparrow x,- \dots 100\% \uparrow \end{array}$

$$x = \frac{100 \cdot 153}{95} = \frac{1530}{95} = 160$$

$\begin{array}{l} \uparrow 140,- \dots 85\% \uparrow \\ \uparrow y,- \dots 100\% \uparrow \end{array}$

$$y = \frac{100 \cdot 140}{85} = \frac{2000}{85} = \boxed{200} \Rightarrow \text{E}$$

c) Stápní 5% znamená 5 výstředí metrů na 100 m \Rightarrow 50 výstředí metrů na 1 km \Rightarrow
 \Rightarrow $\boxed{150 \text{ výstředí metrů na 3 km}}$

11
D

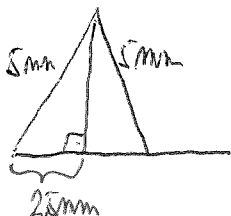
16) 16.1. 10 : 5 = 2 cm \Rightarrow délka strany rovnostranného $\Delta \Rightarrow$

$$\Rightarrow \text{délka lomové čáry nad } |AB| = 10 : 2 = \boxed{20 \text{ cm}}$$

16.2. 32 stádníků úseček \Rightarrow rozdělí AB na 32 : 2 = 16 stádníků délky \Rightarrow

$$\Rightarrow 10 \text{ cm} = 100 \text{ mm} ; 100 : 16 = 6,25 \Rightarrow \boxed{6,25 \text{ mm}}$$

16.3.



Počet úseček: 100 mm : 2,5 mm = $\boxed{40}$