

Ime in priimek:

Razred: 9. ___

Št. točk: /45

Št. odstotkov:

Ocena:

0 t	-	22 t	nzd (1)
22,5 t	-	28,5 t	zd (2)
29 t	-	35,5 t	db(3)
36 t	-	40 t	pdb (4)
40,5 t	-	45 t	odl (5)

1. ___ / 6 Poenostavi razmerja:

a) $32 : 24 = 4 : 3$

b) $6 : 7,5 = 60 : 75 = 4 : 5$

c) $18 l : 0,81 hl =$

$= 18 l : 81 l =$

$= 2 : 9$

d) $\frac{2}{5} : 1\frac{2}{5} = \frac{2 \cdot 5}{5} : \frac{7 \cdot 5}{5} = 2 : 7$

e) $\frac{3}{4} h : 30 min =$

$45 min : 30 min =$

$= 9 min : 6 min =$

$= 3 : 2$

f) $2\frac{1}{2} dag : 0,1 kg =$

$2,5 dag : 10 dag =$

$= 2,5 : 10 =$

$= 25 : 100 =$

$= 1 : 4$

2. ___ / 6 Izračunaj neznani člen sorazmerja:

a) $3 : 4 = x : 12$

$4x = 36$

$x = 9$

b) $6 : 7,5 = 2 : y$

$6y = 15 / : 6$

$y = \frac{15}{6} = \frac{5}{2} = 2,5$

c) $a : (a + 3) = 12 : 18$

$18a = 12(a + 3)$

$18a = 12a + 36$

$18a - 12a = 36$

$6a = 36$

$a = 6$

d) $\frac{1}{4} : 1,25 = b : 5$

$1 : 5 = b : 5$

$5b = 5$

$b = 1$

$\frac{1,25 \cdot 4}{5,00}$

e) $(c + 1) : 2 = (c - 1) : 3$

$2(c - 1) = 3(c + 1)$

$2c - 2 = 3c + 3$

$-c = 5$

$c = -5$

f) $27 : x = -18 \quad | \cdot 1$

$-18x = 27 \quad | : (-18)$

$x = -\frac{27}{18} = -\frac{3}{2} = -1,5$

3. ___ / 3 Notranji koti trikotnika so v razmerju 4 : 5 : 6. Koliko merijo?

$$\alpha : \beta : \gamma = 4 : 5 : 6$$

$$\alpha + \beta + \gamma = 180^\circ$$

$$\alpha = 4t = 4 \cdot 12^\circ = 48^\circ$$

$$\beta = 5t = 5 \cdot 12^\circ = 60^\circ$$

$$\gamma = 6t = 6 \cdot 12^\circ = 72^\circ$$

$$15t = 180^\circ / :15$$

$$t = 12^\circ$$

$$48^\circ, 60^\circ, 72^\circ$$

4. ___ / 4 Ugotovi (in utemelji!) vrsto sorazmerja ter določi (izračunaj) podobnostni koeficient.

a) $x : 2 = 5 : y$

$$x \cdot y = 10$$

OBRATNO SORAZMERJE

$$y = \frac{10}{x}$$

b) $6 : x = 8 : y$

$$8x = 6y$$

$$6y = 8x$$

$$y = \frac{8x}{6}$$

$$y = \frac{4}{3}x$$

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

5. ___ / 3 Določi števila a, b in c, če velja: $a : b : c = 2 : 5 : 9$ in $a - b + c = 60$.

$$a = 2t = 2 \cdot 10 = 20$$

$$b = 5t = 5 \cdot 10 = 50$$

$$c = 9t = 9 \cdot 10 = 90$$

$$2t - 5t + 9t = 60$$

$$6t = 60$$

$$t = 10$$

$$\boxed{20, 50, 90} \text{ ODG}$$

6. ___ / 2 Zemljevid je narisano v razmerju 1 : 25000. Kolikšna je razdalja med krajema v naravi, če sta na tem zemljevidu 12 cm narazen?

$$1 : 25000 = z : m$$

$$1 : 25000 = 12 : m$$

$$m = 25000 \cdot 12$$

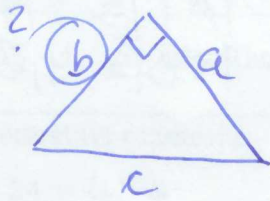
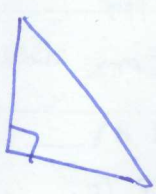
$$m = 300000 \text{ cm}$$

$$m = 3 \text{ km} \text{ - ODG}$$

[cm]

$$\frac{25000 \cdot 12}{25000} = 30000$$

7. ___ / 3 V pravokotnem 3-kotniku sta stranici a in b kateti, stranica c pa je hipotenuza. Izračunaj ploščino tega 3-kotnika če veš, da je $a : c = 3 : 5$ in obseg meri 6 dm.



$$a : c = 3 : 5$$

$$a = 3t = 15 \text{ cm}$$

$$c = 5t = 25 \text{ cm}$$

$$b = 4t = 20 \text{ cm}$$

$$a^2 + b^2 = c^2$$

$$(3t)^2 + b^2 = (5t)^2$$

$$9t^2 + b^2 = 25t^2$$

$$b^2 = 25t^2 - 9t^2 = 16t^2$$

$$\sigma = 60 \text{ cm}$$

$$\sigma = a + b + c$$

$$60 = 3t + 5t + 4t$$

$$60 = 12t$$

$$t = 5$$

$$p = \frac{a \cdot b}{2}$$

$$p = \frac{15 \cdot 20}{2} = 150$$

$$p = 150 \text{ cm}^2$$

8. ___ / 4 Pešec prehodi 12 km v dveh urah.

a. Kolikšno pot prehodi v 3 urah?

$$\begin{array}{l} \downarrow 12 \text{ km} \dots\dots 2 \text{ h} \downarrow \\ \downarrow x \text{ km} \dots\dots 3 \text{ h} \downarrow \\ \hline \end{array}$$

$$12 : x = 2 : 3$$

$$2x = 36$$

$$x = 18$$

Prehodil je 18 km.

b. V kolikšnem času bo prehodil 10 km?

$$\begin{array}{l} \downarrow 12 \text{ km} \dots\dots 2 \text{ h} \downarrow \\ \downarrow 10 \text{ km} \dots\dots x \text{ h} \downarrow \\ \hline \end{array}$$

$$12 : 10 = 2 : x$$

$$6 : 5 = 2 : x$$

$$6x = 10 : 6$$

$$x = \frac{10}{6} = \frac{5}{3} = 1\frac{2}{3} \text{ ure}$$

Hodil bo

1 uro in 40 min.

9. ___ / 3 Če bi delali 4 delavci, bi delo opravili v 7 dneh. V kolikšnem času bi enako delo opravilo 14 delavcev?

$$\begin{array}{l} \downarrow 4 \text{ delavci} \dots\dots 7 \text{ dni} \uparrow \\ \downarrow 14 \text{ delavcev} \dots\dots x \text{ dni} \uparrow \\ \hline \end{array}$$

ALI

$$x = \frac{4 \cdot 7 \cdot 1 \cdot 2}{14 \cdot 2 \cdot 1} = 2$$

$$4 : 14 = x : 7$$

$$2 : 7 = x : 7$$

$$7x = 14$$

$$x = 2$$

V 2 dneh.

10. ___ / 2 Stranice trikotnika ABC merijo 9 cm, 12 cm in 18 cm. Najdaljša stranica podobnega trikotnika meri 6 cm. Koliko merita ostali dve stranici podobnega trikotnika?

ΔABC
 $a = 9 \text{ cm}$
 $b = 12 \text{ cm}$
 $c = 18 \text{ cm}$

$\Delta A'B'C'$

$a' = 3 \text{ cm}$
 $b' = 4 \text{ cm}$
 $c' = 6 \text{ cm}$

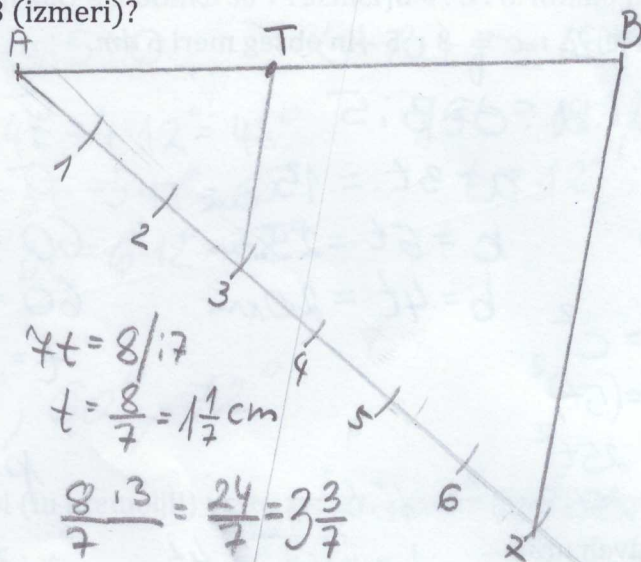
odg

$$k = \frac{c'}{c} = \frac{6}{18} = \frac{1}{3}$$

$$a' = k \cdot a = \frac{1}{3} \cdot 9 = 3 \text{ cm}$$

$$b' = k \cdot b = \frac{1}{3} \cdot 12 = 4 \text{ cm}$$

11. ___ / 3 Na daljici AB z dolžino 8 cm poišči točko T za katero velja $|AT| : |TB| = 3 : 4$. Koliko merita daljici AT in TB (izmeri)?



$$|AT| = 3,4 \text{ cm}$$

$$|TB| = 4,6 \text{ cm}$$

$$|AT| : |TB| = 3 : 4$$

$$|AT| = 3t$$

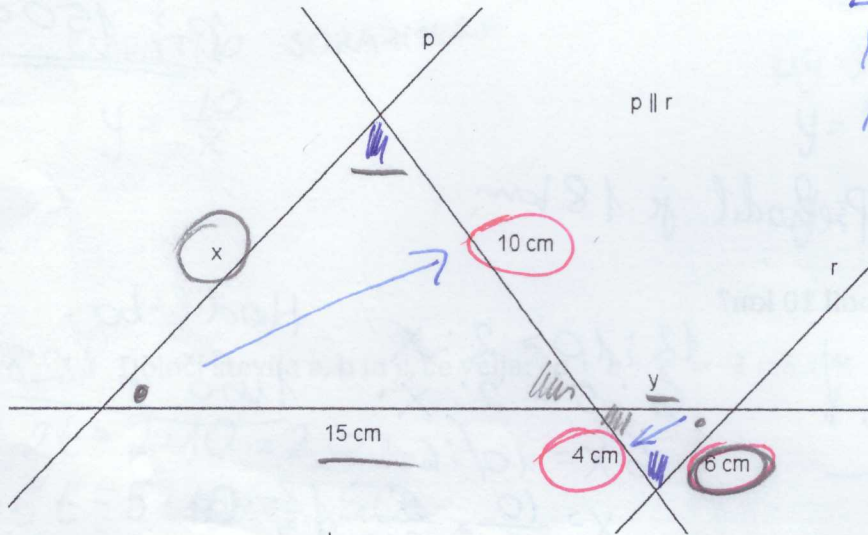
$$|TB| = 4t$$

$$7t = 8 / 7$$

$$t = \frac{8}{7} = 1\frac{1}{7} \text{ cm}$$

$$\frac{8 \cdot 3}{7} = \frac{24}{7} = 3\frac{3}{7}$$

12. ___ / 3 Izračunaj dolžini x in y:



ISTOLEŽNE STRANI

Δ	Δ'
10 cm in	4 cm
15 cm in	y
x in	6 cm

$$5 : 2 = 15 : y = x : 6$$

$5 : 2 = 15 : y$	$5 : 2 = x : 6$
$5y = 30$	$2x = 30$
$y = 6 \text{ cm}$	$x = 15 \text{ cm}$

13. ___ / 3 Nariši trikotnik ABC s podatki: $c = 4 \text{ cm}$, $\alpha = 60^\circ$ in $\beta = 75^\circ$. Nato sliko dopolni s podobnim trikotnikom $A'B'C'$ katerega stranica $c' = 3 \text{ cm}$.

