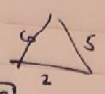
14ČAS [- Primene sličnosti -]

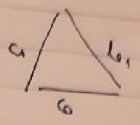
DATUM: 24.9.2026

+Domaći: 33, 34

(25) Stranice Δ se odnose kao 2:5:6. Nađi ostanja stranica njemu sličnog Δ je $a_1 = 6$. Odrediti obim.

$2:5:6 = a_1:b_1:c_1$





$2:5 = 6:b_1 \Rightarrow b_1 = \frac{6 \cdot 5}{2} = \boxed{15}$

$2:6 = 6:c_1 \Rightarrow c_1 = \frac{6 \cdot 6}{2} = \boxed{18}$

$O_1 = a_1 + b_1 + c_1 = 6 + 15 + 18 = 39$

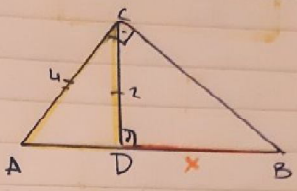
$\boxed{O_1 = 39}$

(35) Odrediti duž DB na slici

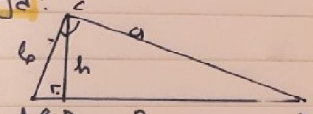
$AC = 4 \quad DC = 2$

$\sphericalangle ACB = 90°$

D-podnožije visine iz temena C na stranicu AB



Ideja:



$a^2 = c \cdot p$

$b^2 = c \cdot q$

$h^2 = p \cdot q$

iz zadatka $\Rightarrow b = 4$

$4^2 = q \cdot c$

Podsetnik: $a^2 = c^2 + b^2$ Pitagorina teorema

q - Dobijamo iz Pitagorine teoreme

• ΔACD - pravougli AC - hipotenuza

CD ; CA - kraći

$AD^2 = CA^2 - CD^2 = 4^2 - 2^2 = 12$

$AD = \sqrt{12} = \sqrt{4 \cdot 3} = 2\sqrt{3}$

$4^2 = 2\sqrt{3} \cdot c \Rightarrow c = \frac{16}{2 \cdot \sqrt{3}} = \frac{8}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{8\sqrt{3}}{3}$

racionalisemo

p isto što i DB tj. traženo x

$p + q = c$

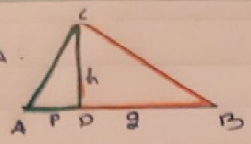
$q = c - p = \frac{8\sqrt{3}}{3} - 2\sqrt{3}$

$x = q = \frac{8\sqrt{3} - 6\sqrt{3}}{3} = \frac{2\sqrt{3}}{3}$

$\boxed{DB = \frac{2\sqrt{3}}{3}}$

36 Hipotenuzina visina deli hipotenuzu pravouglog Δ na duži $p=9cm$ i $q=16cm$. Izračunati obim i površinu

IDEJA



$h^2 = p \cdot q$

$\Rightarrow$ Dobijamo h

$\Rightarrow$ Zatim primenimo Pitagorinu teoremu

ΔADC i ΔCDB

$AC^2 = AD^2 + DC^2$ $\quad$ $CB^2 = BD^2 + CD^2$

REŠENJE: $h^2 = 9 \cdot 16 = 144\,cm^2$

$h = \sqrt{144\,cm^2} = 12\,cm$

ΔCDB $\quad h^2 + q^2 = CB^2$

$12^2 + 16^2 = 400 = CB^2$

$CB = 20\,cm$

ΔACD $\quad AC^2 = h^2 + p^2 = 12^2 + 9^2 = 225\,cm^2$

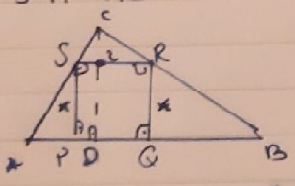
$AC = 15\,cm$

$AB = p + q = 6 + 19 = 25\,cm$

$O = AB + AC + BC = 25 + 15 + 20 = 60\,cm$

$P_{\Delta ABC} = \frac{1}{2} c \cdot h_c = \frac{1}{2} \cdot 25 \cdot 12 = 150\,cm^2$

44 U ΔABC čija je stranica $c = 12cm$, a površina $36cm^2$ upisan je kvadrat tj. su 2 temena na osnovici c, a dva na str: AC i BC. Odrediti površinu tog kvadrata.



$AB = 12\,cm$

$P = \frac{1}{2} \cdot c \cdot h_c = 36$

$h_c = 2 \cdot \frac{36}{c} = \frac{2 \cdot 36}{12} = 6\,cm$ $\quad h_c = 6cm$

$CD = 6cm$

Hint je $SR = x$ tj. $SR = RQ = QP = SP = x$

Neka je:

Posmatramo ΔABC i ΔCSR

$\Delta ABC \sim \Delta CSR$

$\frac{c}{h_c} = \frac{x}{h_c - x}$ $\quad \frac{12}{6} = \frac{x}{6-x}$ $\quad 12(6-x) = 6x$

$12 - 2x = x$

$3x = 12$

$x = 4$ $\quad P_{QRS} = x^2 = 4^2 = 16cm^2$

Domaći: 33 ; 34 24.09.2020

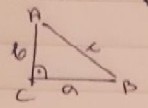
Primena sličnosti

(33) U pravouglom Δ su katete:

(a) $a = 3cm$ i $b = 4cm$;

(b) $a = 5cm$ i $b = 12cm$;

Ideja Primenimo Pitagorinu teoremu: $c^2 = a^2 + b^2$



(a) $c^2 = a^2 + b^2 = 3^2 + 4^2 = 9 + 16 = 25 \Rightarrow \boxed{c = 5cm}$

(b) $c^2 = a^2 + b^2 = 5^2 + 12^2 = 25 + 144 = 169 \Rightarrow \boxed{c = 13cm}$

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(34) Neka su a i b - katete c - hipotenuza, h - visina $p = BD$; $q = AD$ odsečci koje visina deli hipotenuzu AB pravouglog ΔABC.
Odrediti nepoznate od skupa $\{a, b, c, h, p, q\}$ ako je

(a) $a = 25cm$ $p = 20cm$;

(b) $b = 0,8cm$ $h = 0,48cm$;

(c) $h = 60cm$ $q = 144cm$;

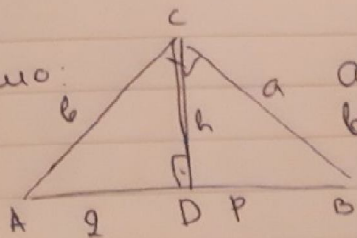
(d) $a = 10cm$ $c = 26cm$;

(e) $p = 0,9cm$ $q = 1,6cm$;

(f) $a = 32cm$ $b = 24cm$;

(g) $c = 2cm$ $h = 0,8cm$;

Koristimo:



$a^2 = c \cdot p$

$b^2 = c \cdot q$

$h^2 = p \cdot q$