
Sistematizacija gradiva VIII-razred

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Zadatak 1. Obavi naznačene operacije:

$$\begin{aligned} a) \quad 4\sqrt{25} + 3\sqrt{36} &= 4 \cdot 5 + 3 \cdot 6 = \\ &= 20 + 18 = \\ &= \mathbf{38} \end{aligned}$$

$$\begin{aligned} b) \quad 4\sqrt{8} + 6\sqrt{18} - 4\sqrt{50} &= 4\sqrt{4 \cdot 2} + 6\sqrt{9 \cdot 2} - 4\sqrt{25 \cdot 2} = \\ &= 4 \cdot 2\sqrt{2} + 6 \cdot 3\sqrt{2} - 4 \cdot 5\sqrt{2} = \\ &= 8\sqrt{2} + 18\sqrt{2} - 20\sqrt{2} = \\ &= (8 + 18 - 20)\sqrt{2} = \\ &= \mathbf{6\sqrt{2}} \end{aligned}$$

Zadatak 2. Riješi jednačine:

$$a) 16x^2 = 9 / : 16$$

$$x^2 = \frac{9}{16}$$

$$x = \pm \sqrt{\frac{9}{16}}$$

$$x_1 = \frac{3}{4}$$

$$x_2 = -\frac{3}{4}$$

$$b) 3x^2 + 3 = 30$$

$$3x^2 = 30 - 3$$

$$3x^2 = 27 / : 3$$

$$x^2 = 9$$

$$x = \pm \sqrt{9}$$

$$x_1 = 3$$

$$x_2 = -3$$

Zadatak 3. Pomoću tablica izračunaj:

$$a) 47^2 = 2209$$

$$b) 12,3^2 = 151,29$$

$$c) \sqrt{9216} = 96$$

$$d) \sqrt{1,3689} = 1,17$$

Zadatak 4. Izračunaj:

$$\begin{aligned} b) \quad & 1\frac{1}{5}\sqrt{25} - \sqrt{2 - \frac{1}{25}} - \sqrt{\left(\frac{2}{3} - 1\right)^2} = \\ & = \frac{6}{5} \cdot 5 - \sqrt{\frac{50-1}{25}} - \sqrt{\left(\frac{2-3}{3}\right)^2} = \\ & = 6 - \sqrt{\frac{49}{25}} - \sqrt{\left(\frac{-1}{3}\right)^2} = \\ & = 6 - \frac{7}{5} - \frac{1}{3} = \\ & = \frac{90-21-5}{15} = \frac{64}{15} = \mathbf{4,27} \end{aligned}$$

Zadatak 5.

Osnovica jednakokrakog trougla je obilježena sa a , krak sa b i visina koja odgovara osnovici sa h . Izračunaj nepoznate elemente, ako je dato:

$$a = 102 \text{ cm}$$

$$\underline{O = 400 \text{ cm}}$$

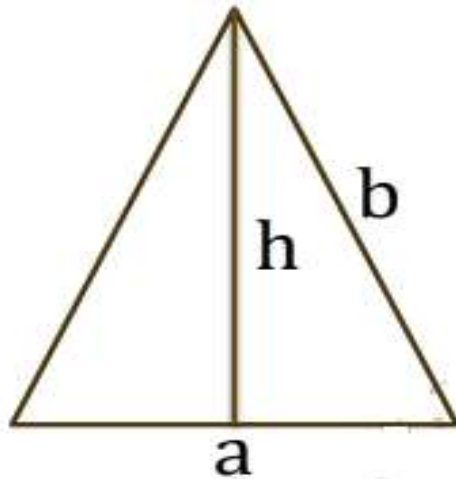
$$P, h = ?$$

Rješenje 5.

$$a = 102 \text{ cm}$$

$$\underline{O = 400 \text{ cm}}$$

$$\mathbf{P, h = ?}$$



$$O = a + 2b$$

$$400 = 102 + 2b$$

$$2b = 400 - 102$$

$$2b = 298 / : 2$$

$$\mathbf{b = 149 \text{ cm}}$$

$$h^2 = b^2 - a^2$$

$$h^2 = 149^2 - 102^2$$

$$h^2 = 22201 - 10404$$

$$h^2 = 11797$$

$$h = \sqrt{11797}$$

$$\mathbf{h \approx 109 \text{ cm}}$$

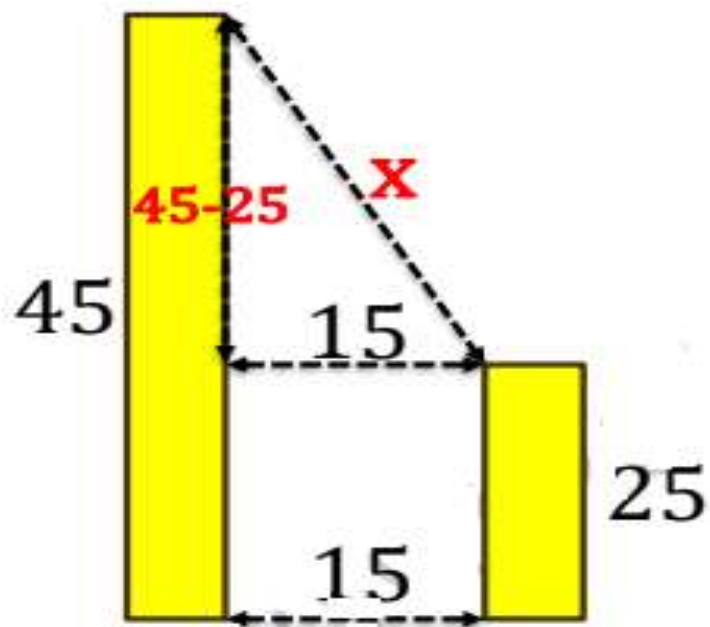
$$P = \frac{ah}{2} = \frac{102 \cdot 109}{2} = 51 \cdot 109$$

$$\mathbf{P = 5559 \text{ cm}^2}$$

Zadatak 6.

Dvije zgrade su udaljene jedna od druge 15 m. Prva je visoka 25 m, a druga 45 m. Kolika je udaljenost njihovih vrhova?

Rješenje 6.



$$x^2 = 20^2 + 15^2$$

$$x^2 = 400 + 225$$

$$x^2 = 625$$

$$h = \sqrt{625}$$

$$h = 25 \text{ m}$$

Zadatak 7.

Odredi nepoznati član x iz proporcije:

a) $3 : 8 = 12 : x$

b) $8 : 1,2 = 4 : x$

Rješenje 7.

$$\text{a)} \quad 3 : 8 = 12 : x$$

$$3x = 12 \cdot 8$$

$$3x = 96 / : 3$$

$$x = 32$$

$$\text{b)} \quad 8 : 1,2 = 4 : x$$

$$8x = 1,2 \cdot 4$$

$$8x = 4,8 / : 8$$

$$x = 0,6$$

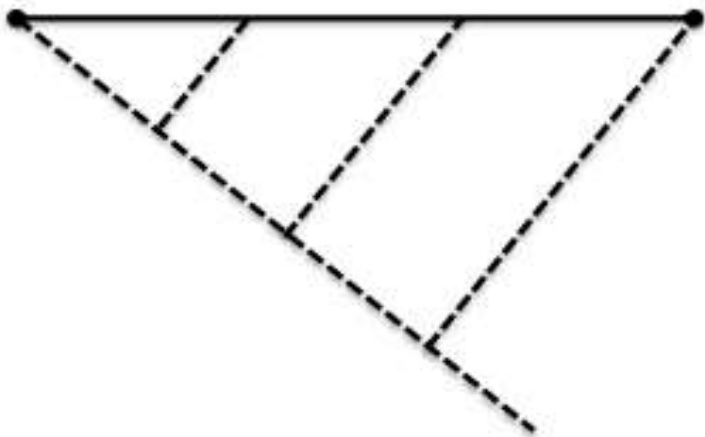
Zadatak 8.

Data je duž $a = 5$ cm. Podijeli datu duž:

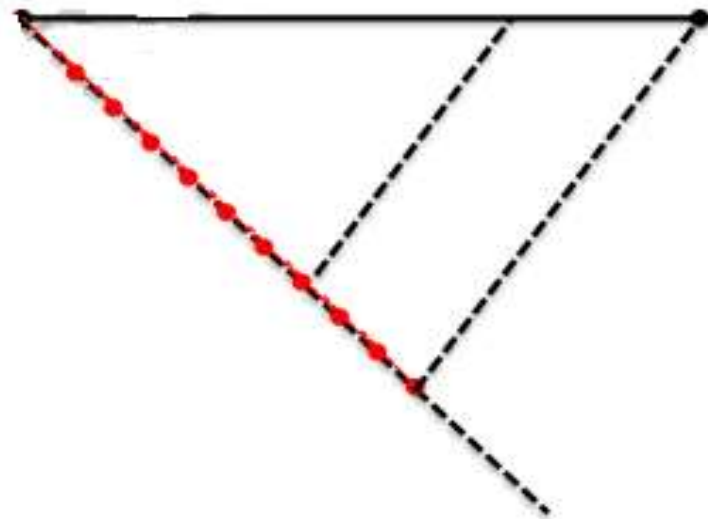
- a) na 3 jednaka dijela
- b) u razmjeri $7 : 3$

Rješenje 8.

a) na 3 jednaka dijela



b) u razmjeri 7 : 3



Zadatak 9.

Izračunati dužinu duži \overline{AC} , \overline{AE} i \overline{BC} ,

ako je:

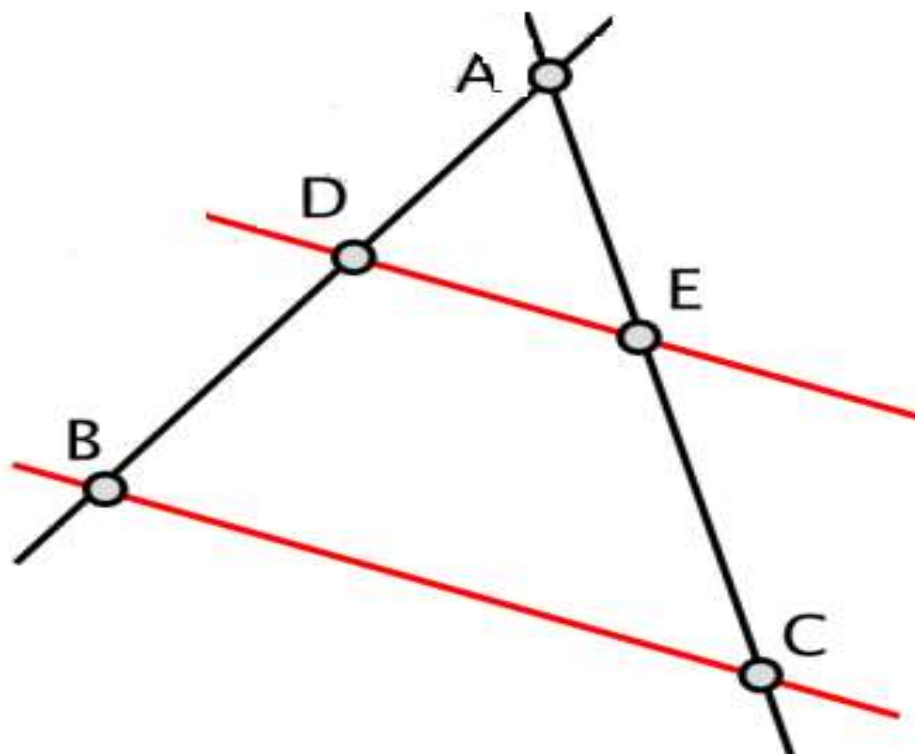
$$\overline{DE} \parallel \overline{BC} \text{ i}$$

$$\overline{EC} = 15 \text{ mm}$$

$$\overline{DE} = 30 \text{ mm}$$

$$\overline{AB} = 48 \text{ mm}$$

$$\overline{AD} = 36 \text{ mm}$$



Rješenje 9.

$$\overline{DE} \parallel \overline{BC} \text{ i}$$

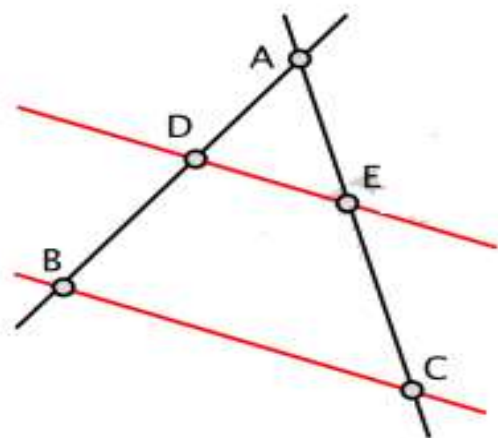
$$\overline{EC} = 15 \text{ mm}$$

$$\overline{DE} = 30 \text{ mm}$$

$$\overline{AB} = 48 \text{ mm}$$

$$\overline{AD} = 36 \text{ mm}$$

$$\overline{AC}, \overline{AE} \text{ i } \overline{BC} = ?$$



$$\overline{AD} : \overline{DE} = \overline{AB} : \overline{BC}$$

$$36 : 30 = 48 : \overline{BC}$$

$$36 \cdot \overline{BC} = 30 \cdot 48$$

$$36 \cdot \overline{BC} = 1440$$

$$\overline{BC} = 1440 : 36$$

$$\overline{BC} = 40 \text{ mm}$$

$$\overline{AE} : \overline{DE} = \overline{AC} : \overline{BC}$$

$$\overline{AE} : 30 = (\overline{AE} + 15) : 40$$

$$40 \cdot \overline{AE} = 30 \cdot (\overline{AE} + 15)$$

$$\overline{AE} = 15 \text{ mm}$$

$$\overline{AC} = \overline{AE} + \overline{EC} = 15 + 15 = 30 \text{ mm}$$