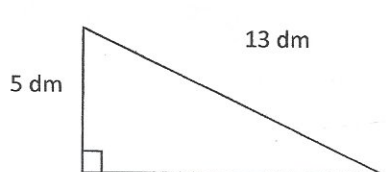


# Pitagorov izrek v PRAVOKOTNEM TRIKOTNIKU

## 1. Pravokotni trikotnik

kateta	kateta	hipotenuza	obseg	ploščina
a = 3 cm	b = 4 cm	c = 5 cm	$\sigma = 12$ cm	$\mu = 6$ cm <sup>2</sup>
x = 12 m	y = 16 m	z = 20 m	$\sigma = 48$ m	$\mu = 96$ m <sup>2</sup>
t = 35 dm	u = 12 dm	v = 37 dm	$\sigma = 84$ dm	$\mu = 210$ dm <sup>2</sup>

## 2. Za trikotnik na skici izračunaj kateto, obseg in ploščino.



$$x^2 = 13^2 - 5^2$$

$$x^2 = 169 - 25$$

$$x^2 = 144$$

$$x = \sqrt{144}$$

$$x = 12 \text{ dm}$$

$$\sigma = 5 + 12 + 13$$

$$\sigma = 30 \text{ dm}$$

$$\mu = \frac{5 \cdot 12 \cdot 6}{2 \cdot 1}$$

$$\mu = 30 \text{ dm}^2$$

- Preveri, ali je trikotnik s stranicami dolgimi 15 m, 18 m in 8 m pravokoten? **NE**
- Kako visoko seže lestev postavljena ob zid, če je njena dolžina 17 dm, od stene pa je odmaknjena 0,8 m?  $15 \text{ dm} = 1,5 \text{ m}$
- V pravokotnem trikotniku merita kateti 8 cm in 15 cm. Izračunaj hipotenuzo, obseg in ploščino trikotnika (in višino na hipotenuzo\*).
- V pravokotnem trikotniku meri kateta 5,2 cm, hipotenuza pa 17,3 cm. Izračunaj drugo kateto, obseg in ploščino trikotnika (in višino na hipotenuzo\*).

1.)  $c^2 = a^2 + b^2$   
 $c^2 = 3^2 + 4^2$   
 $c^2 = 9 + 16$   
 $c^2 = 25$   
 $c = \sqrt{25}$   
 $c = 5 \text{ cm}$

$\sigma = a + b + c$   
 $\sigma = 3 + 4 + 5$   
 $\sigma = 12 \text{ cm}$   
 $\mu = \frac{a \cdot b}{2}$   
 $\mu = \frac{3 \cdot 4 \cdot 2}{2 \cdot 1}$   
 $\mu = 6 \text{ cm}^2$

$y^2 = z^2 - x^2$   
 $y^2 = 20^2 - 12^2$   
 $y^2 = 400 - 144$   
 $y^2 = 256$   
 $y = \sqrt{256}$   
 $y = 16 \text{ m}$

$\sigma = x + y + z$   
 $\sigma = 12 + 16 + 20$   
 $\sigma = 48 \text{ m}$   
 $\mu = \frac{x \cdot y}{2}$   
 $\mu = \frac{12 \cdot 16 \cdot 2}{2 \cdot 1}$   
 $\mu = 96 \text{ m}^2$

$t^2 = v^2 - u^2$   
 $t^2 = 37^2 - 12^2$   
 $t^2 = 1369 - 144$   
 $t^2 = 1225$   
 $t = \sqrt{1225}$   
 $t = 35 \text{ dm}$

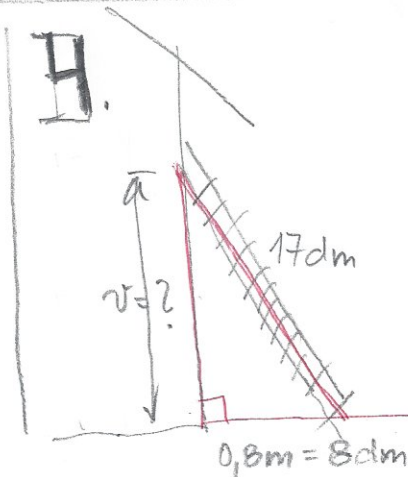
$\sigma = t + u + v$   
 $\sigma = 35 + 12 + 37$   
 $\sigma = 84 \text{ dm}$   
 $\mu = \frac{t \cdot u}{2}$   
 $\mu = \frac{35 \cdot 12 \cdot 2}{2 \cdot 1}$   
 $\mu = 210 \text{ dm}^2$

3.)  $18^2 = 15^2 + 8^2$

$324 = 225 + 64$

$324 = 289 \text{ ?!}$

ENAKOST NE VELEJA,  
 ZATO TRIKOTNIK NI  
 PRAVOKOTEN!



$v^2 = 17^2 - 8^2$

$v^2 = 289 - 64$

$v^2 = 225$

$v = \sqrt{225}$

$v = 15 \text{ dm}$

LESTEV SEŽE 15 dm VISOKO.

$$5.) k_1 = 8 \text{ cm}$$

$$k_2 = 15 \text{ cm}$$

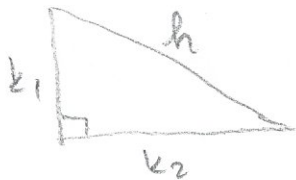

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$$h = 17 \text{ cm}$$

$$\sigma = 40 \text{ cm}$$

$$\mu = 60 \text{ cm}^2$$

$$v_h \approx 7,06 \text{ cm}$$



$$h^2 = k_1^2 + k_2^2$$

$$\sigma = k_1 + k_2 + h$$

$$h^2 = 8^2 + 15^2$$

$$\sigma = 8 + 15 + 17$$

$$h^2 = 64 + 225$$

$$\sigma = 40 \text{ cm}$$

$$h^2 = 289$$

$$\mu = \frac{k_1 \cdot k_2}{2}$$

$$h = \sqrt{289}$$

$$\mu = \frac{8 \cdot 15 \cdot 4}{2 \cdot 1}$$

$$\underline{h = 17 \text{ cm}}$$

$$\underline{\mu = 60 \text{ cm}^2}$$

$$\mu = \frac{h \cdot v_h}{2}$$

$$60 = \frac{17 \cdot v_h}{2}$$

$$60 = 8,5 \cdot v_h$$

$$v_h = 60 : 8,5$$

$$\underline{v_h \approx 7,06 \text{ cm}}$$

$$6.) k_1 = 5,2 \text{ cm}$$

$$h = 17,3 \text{ cm}$$

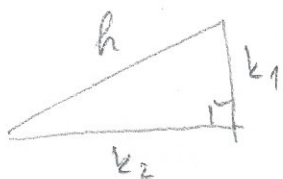

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$$k_2 = 16,5 \text{ cm}$$

$$\sigma = 39 \text{ cm}$$

$$\mu = 42,9 \text{ cm}^2$$

$$v_h \approx 4,96 \text{ cm}$$



$$k_2^2 = h^2 - k_1^2$$

$$\sigma = k_1 + k_2 + h$$

$$k_2^2 = 17,3^2 - 5,2^2$$

$$\sigma = 5,2 + 16,5 + 17,3$$

$$k_2^2 = 299,29 - 27,04$$

$$\sigma = 39 \text{ cm}$$

$$k_2^2 = 272,25$$

$$\mu = \frac{k_1 \cdot k_2}{2}$$

$$k_2 = \sqrt{272,25}$$

$$\mu = \frac{5,2 \cdot 16,5 \cdot 2,6}{2 \cdot 1}$$

$$\underline{k_2 = 16,5 \text{ cm}}$$

$$\underline{\mu = 42,9 \text{ cm}^2}$$

$$\mu = \frac{h \cdot v_h}{2}$$

$$42,9 = \frac{17,3 \cdot v_h}{2}$$

$$42,9 = 8,65 \cdot v_h$$

$$v_h = 42,9 : 8,65$$

$$\underline{v_h \approx 4,96 \text{ cm}}$$