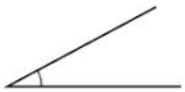
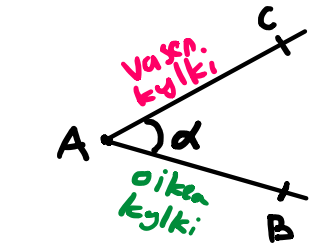
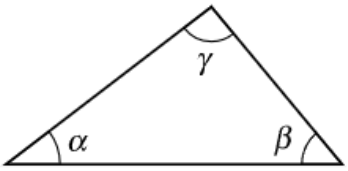
Terävä kulma • Kulman suuruus on alle 90°.	
Suora kulma • Kulman suuruus on 90°. • Kulmaa merkitään omalla merkinnällä.	
Tylppä kulma • Kulman suuruus on yli 90° mutta alle 180°.	
Oikokulma • Kulman suuruus on 180°.	
Kupera kulma • Kulman suuruus on yli 180° mutta alle 360°.	
Täysi kulma • Kulman suuruus on 360°.	

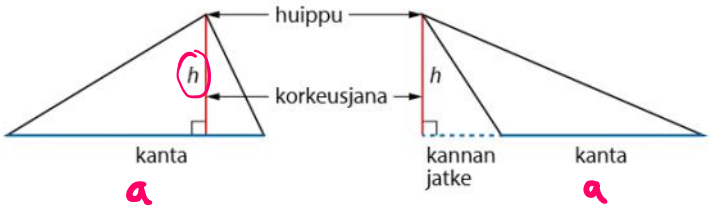


$\sphericalangle BAC = \sphericalangle A = \alpha$

Kolmio

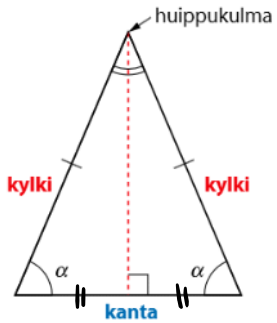


$\alpha + \beta + \gamma = 180°$

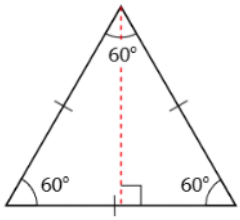


Pinta-ala

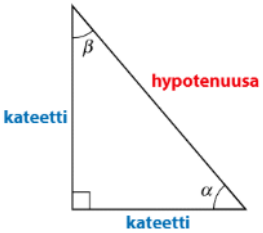
$A = \frac{a \cdot h}{2} \left(= \frac{1}{2} ah\right)$



tasakylkinen kolmio



tasasivuinen kolmio

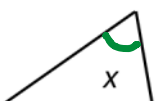


suorakulmainen kolmio

S.15

1.1 Laske kulman x suuruus.

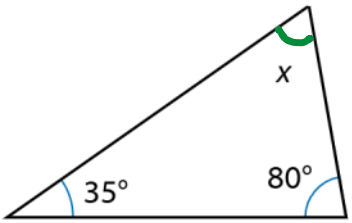
a)



b)

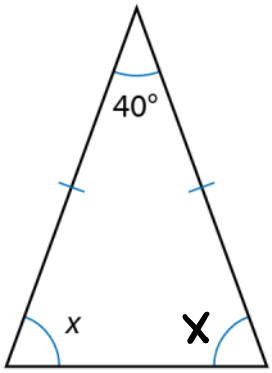
$2 \times 146° = 180°$

a)



$x = 180° - (35° + 80°)$
$= 65°$

b)

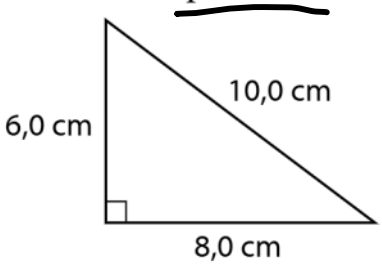


$2x + 40° = 180°$
$2x = 180° - 40°$
$2x = 140°$ $/\!/:2$
$x = 70°$

1.3 Laske kolmion pinta-ala.

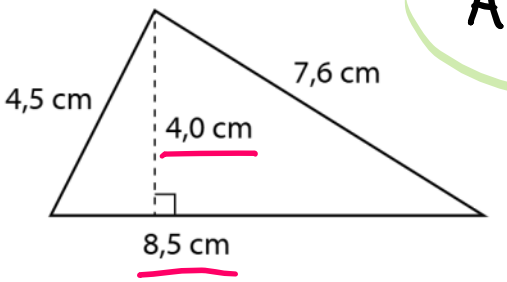
$A = \frac{a \cdot h}{2}$

a)



$A = \frac{8\,cm \cdot 6\,cm}{2}$
$= \frac{48\,cm^2}{2} = 24\,cm^2$

b)

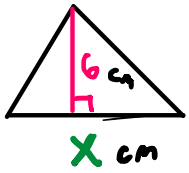


$A = \frac{8{,}5 \cdot 4}{2} = 17\,cm^2$

1.9 Kolmion pinta-ala on 15 cm^2 ja korkeus 6 cm. Laske kolmion kannan pituus.

$A = 15\,cm^2$

$A = \frac{a \cdot h}{2}$



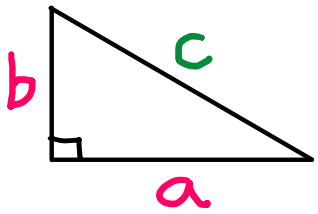
$\frac{x \cdot 6}{2} = 15$

$\frac{6x}{2} = 15$

$3x = 15$ $/\!/:3$
$x = 5$

V: 5 cm

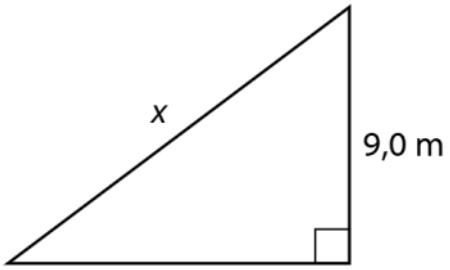
(2) Pythagoraan lause



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

2.3 Ratkaise kolmion sivun pituus x.

a)



$9^2 + 12^2 = x^2$

$81 + 144 = x^2$

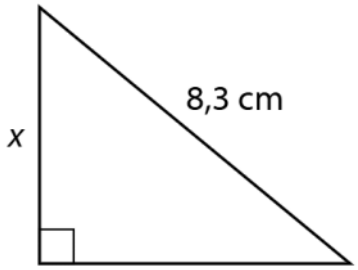
$225 = x^2$

$x^2 = 225$

$x = (\pm)\sqrt{225}$

$x = 15{,}0$ m

b)



$x^2 + 6{,}4^2 = 8{,}3^2$

$x^2 = 8{,}3^2 - 6{,}4^2$

$x^2 = 27{,}93$

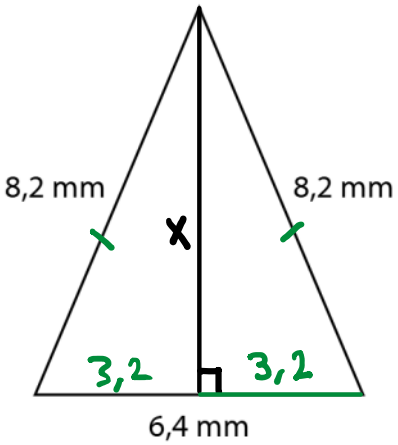
$x = \sqrt{27{,}93}$

√(27,93)

5,28488410468952478807

$x \approx 5{,}3$ cm

2.8 Laske kolmion korkeus ja pinta-ala.



$x^2 + 3{,}2^2 = 8{,}2^2$

$x^2 = 8{,}2^2 - 3{,}2^2$

$x = \sqrt{8{,}2^2 - 3{,}2^2}$

√(8,2 ^ 2 – 3,2 ^ 2)

7,549834435270749697 24

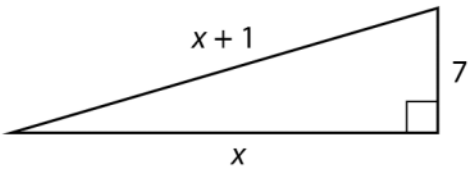
$x \approx 7{,}5$ mm

$A = \frac{6{,}4 \cdot 7{,}549\ldots}{2} \approx 24$ mm²

ANS × 6,4 ÷ 2

24,1594701928663990312

2.10 Suorakulmaisen kolmion korkeus on 7 cm. Kolmion hypotenuusa on senttimetrin pidempi kuin kanta. Määritä kolmion sivujen pituudet.



$x^2 + 7^2 = (x+1)^2$

$= (x+1)(x+1)$

$x^2 + x + x + 1$

$x^2 + 7^2 = x^2 + 2x + 1$

$x^2 - x^2 + 49 = 2x + 1$

$49 = 2x + 1$

$49 - 1 = 2x$

$2x = 48 \quad /:2$

$x = 24$

V: 24 cm,
25 cm,
7 cm.