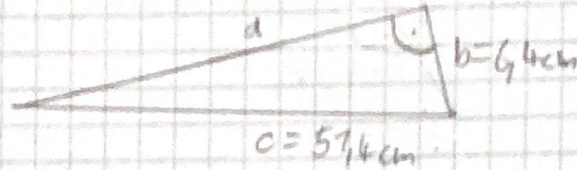


Aufgabe 1:

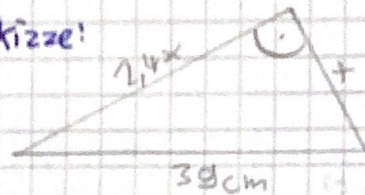
Skizze:



$$\begin{aligned} a^2 + b^2 &= c^2 \quad | -b^2 \\ a^2 &= c^2 - b^2 \\ a^2 &= 57,4^2 - 6,4^2 \\ a^2 &= 2607,16 \\ a &= 51 \end{aligned}$$

Aufgabe 2:

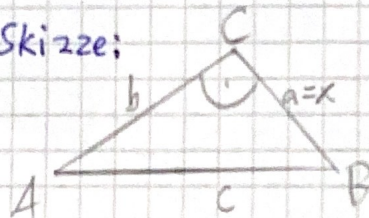
Skizze:



$$\begin{aligned} a^2 + b^2 &= c^2 \\ x^2 + (2,4x)^2 &= 39^2 \\ x^2 + 5,76x^2 &= 1521 \\ 6,76x^2 &= 1521 \quad | : 6,76 \\ x^2 &= 225 \quad | \sqrt{} \\ x &= 15 \end{aligned}$$

Aufgabe 3:

Skizze:



Variablen festlegen:

größere Kathete: x
kleinere Kathete: $\frac{3}{4}x$
Hypotenuse: $x+4$

$$\begin{aligned} a^2 + b^2 &= c^2 \\ x^2 + \left(\frac{3}{4}x\right)^2 &= (x+4)^2 \\ x^2 + \frac{9}{16}x^2 &= x^2 + 8x + 16 \\ \frac{25}{16}x^2 &= x^2 + 8x + 16 \quad | -x^2 \\ 0 &= -\frac{9}{16}x^2 + 8x + 16 \quad | \cdot \left(-\frac{16}{9}\right) \\ 0 &= x^2 - \frac{128}{9}x - \frac{256}{9} \end{aligned}$$

$$x_{1,2} = \frac{128}{18} \pm \sqrt{\left(\frac{128}{18}\right)^2 + \frac{256}{9}}$$

$$x_{1,2} = \frac{64}{9} \pm \sqrt{\left(\frac{64}{9}\right)^2 + \frac{256}{9}}$$

$$x_{1,2} = \frac{64}{9} \pm \sqrt{\frac{4096}{81} + \frac{2304}{81}}$$

$$x_{1,2} = \frac{64}{9} \pm \sqrt{\frac{6400}{81}}$$

$$x_{1,2} = \frac{64}{9} \pm \frac{80}{9}$$

$$x_1 = \frac{64}{9} + \frac{80}{9} = \frac{144}{9} = 16 \quad \checkmark$$

$$x_2 = \frac{64}{9} - \frac{80}{9} = -\frac{16}{9} \quad \times$$

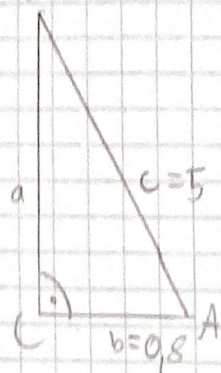
$$a = x_1 = 16$$

$$b = \frac{3}{4} \cdot x = \frac{3}{4} \cdot 16 = 12$$

$$c = x + 4 = 16 + 4 = 20$$

Aufgabe 4:

Skizze:

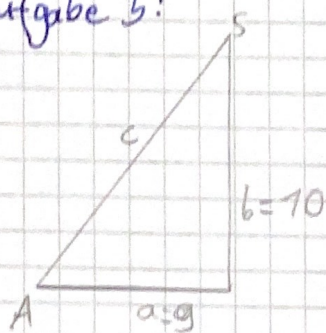


$$\begin{aligned} a^2 + b^2 &= c^2 & | -b^2 \\ a^2 &= c^2 - b^2 \\ a^2 &= 5^2 - 0,8^2 \\ a^2 &= 25 - 0,64 \\ a^2 &= 24,36 & | \sqrt{} \\ a &\approx 4,94 \end{aligned}$$

$\hookrightarrow 4,94\text{m}$

A: ...

Aufgabe 5:



$$\begin{aligned} a^2 + b^2 &= c^2 \\ 9^2 + 10^2 &= c^2 \\ 81 + 100 &= c^2 \\ 181 &= c^2 & | \sqrt{} \\ 13,45 &\approx c \end{aligned}$$

$\hookrightarrow 13,45\text{m}$

A: ...