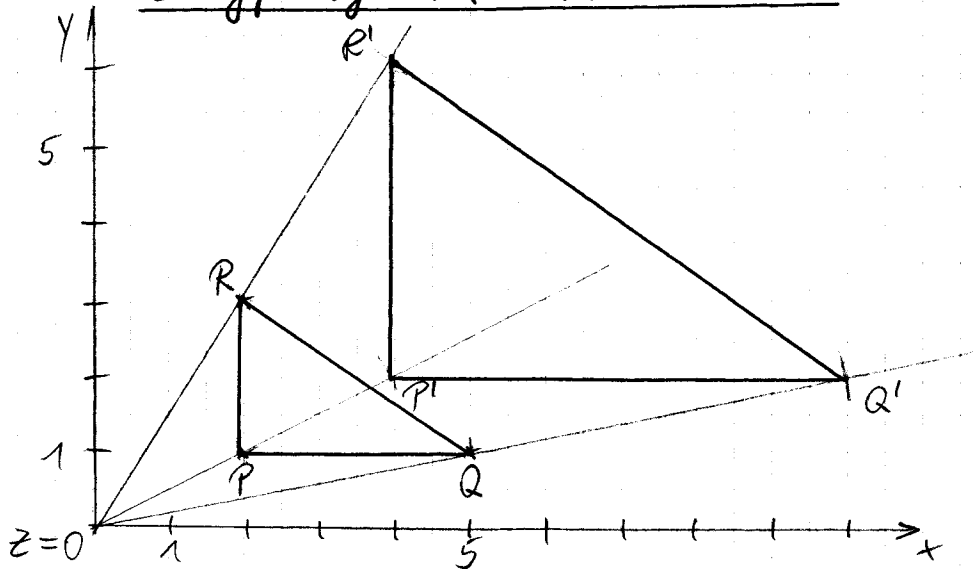


Langfristige HA - Ähnlichkeit

Lösungen

1.

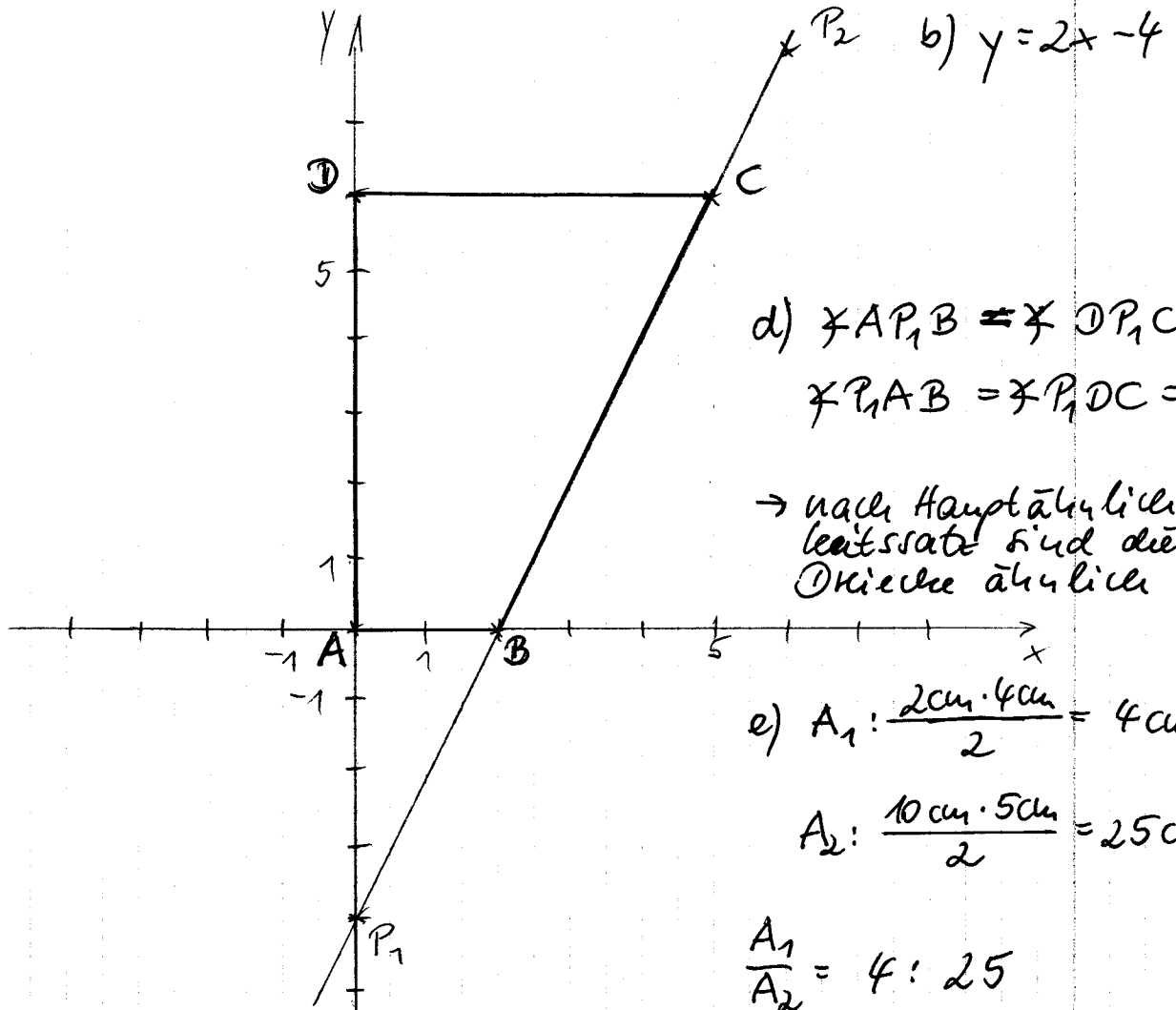


c) $A = \frac{a \cdot b}{2} = \frac{3 \text{ cm} \cdot 2 \text{ cm}}{2} = \underline{\underline{3 \text{ cm}^2}}$

d) $A' = \frac{a' \cdot b'}{2} = \frac{6 \text{ cm} \cdot 4 \text{ cm}}{2} = \underline{\underline{12 \text{ cm}^2}}$

$\frac{A'}{A} = \frac{12 \text{ cm}^2}{3 \text{ cm}^2} = 4:1$

2.



b) $y = 2x - 4$

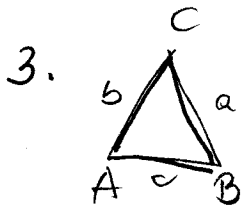
d) $\sphericalangle AP_1B = \sphericalangle DP_1C$
 $\sphericalangle P_1AB = \sphericalangle P_1DC = 90^\circ$

→ nach Hauptähnlichkeitsrate sind die Dreiecke ähnlich

e) $A_1: \frac{2 \text{ cm} \cdot 4 \text{ cm}}{2} = 4 \text{ cm}^2$

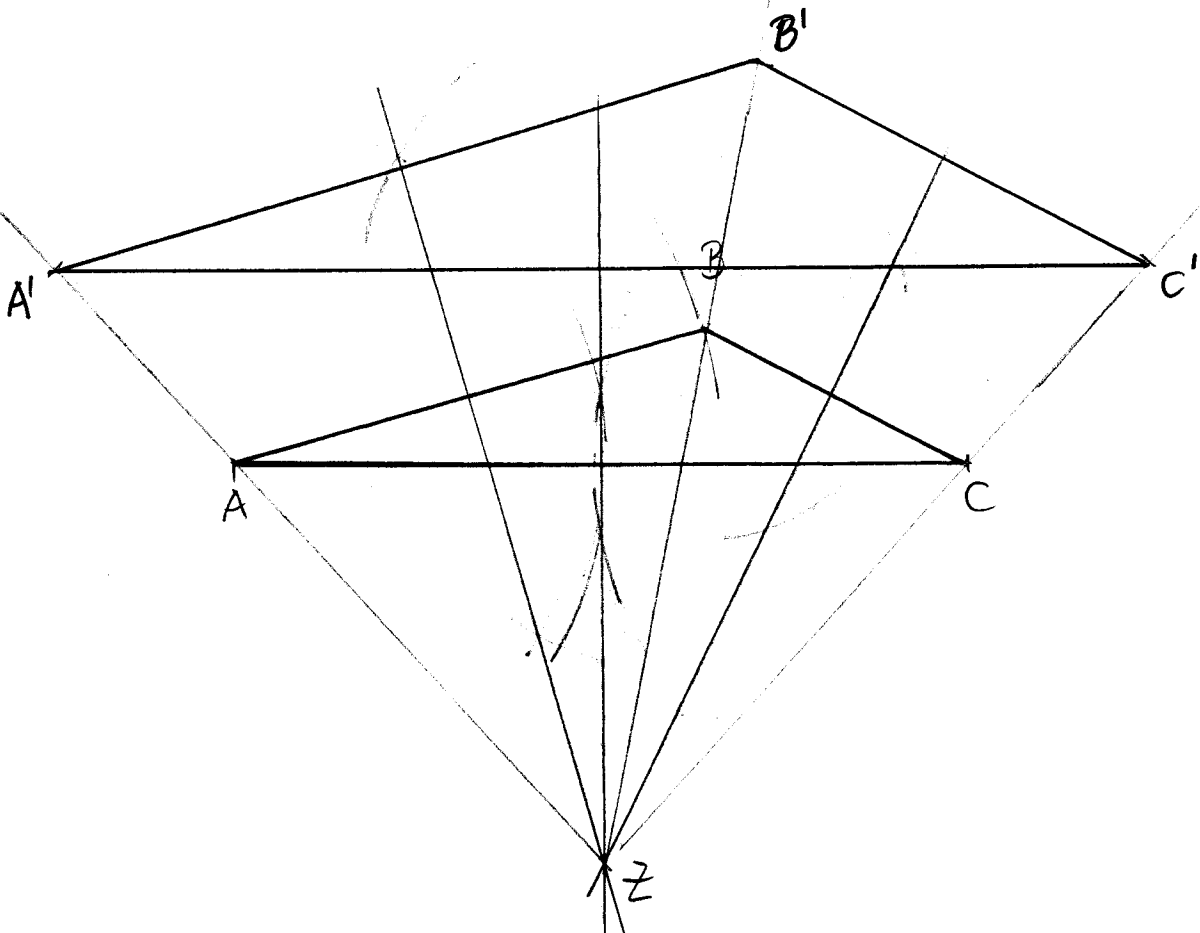
$A_2: \frac{10 \text{ cm} \cdot 5 \text{ cm}}{2} = 25 \text{ cm}^2$

$\frac{A_1}{A_2} = 4:25$



$$\left. \begin{aligned} \overline{AB} &= c = 6,5 \text{ cm} \\ \overline{BC} &= a = 3,8 \text{ cm} \\ \overline{AC} &= b = 9,7 \text{ cm} \end{aligned} \right\} u = 20 \text{ cm}$$

a)



d)

$$\left. \begin{aligned} \overline{A'B'} &= \frac{3}{2} \cdot \overline{AB} = 9,75 \text{ cm} \\ \overline{B'C'} &= \frac{3}{2} \cdot \overline{BC} = 5,7 \text{ cm} \\ \overline{A'C'} &= \frac{3}{2} \cdot \overline{AC} = 14,55 \text{ cm} \end{aligned} \right\} \underline{\underline{u = 30 \text{ cm}}}$$

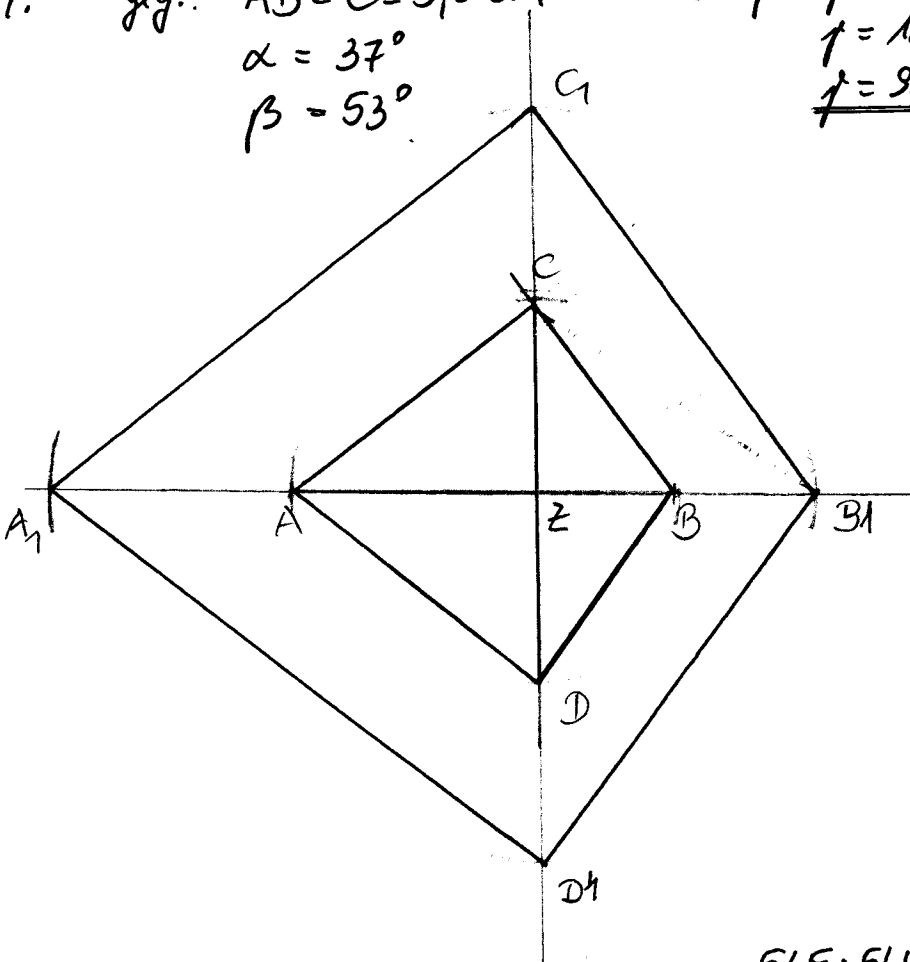
e)

$$2400 \text{ m} = 240000 \text{ cm} \quad \frac{240000 \text{ cm}}{20 \text{ cm}} = \frac{12000}{1}$$

$$\begin{aligned} \rightarrow \overline{A_2B_2} &= 78000 \text{ cm} = \underline{\underline{780 \text{ m}}} \\ \overline{B_2C_2} &= 45600 \text{ cm} = \underline{\underline{456 \text{ m}}} \\ \overline{A_2C_2} &= 116400 \text{ cm} = \underline{\underline{1164 \text{ m}}} \end{aligned}$$

4. geg.: $\overline{AB} = c = 5,0 \text{ cm}$
 $\alpha = 37^\circ$
 $\beta = 53^\circ$

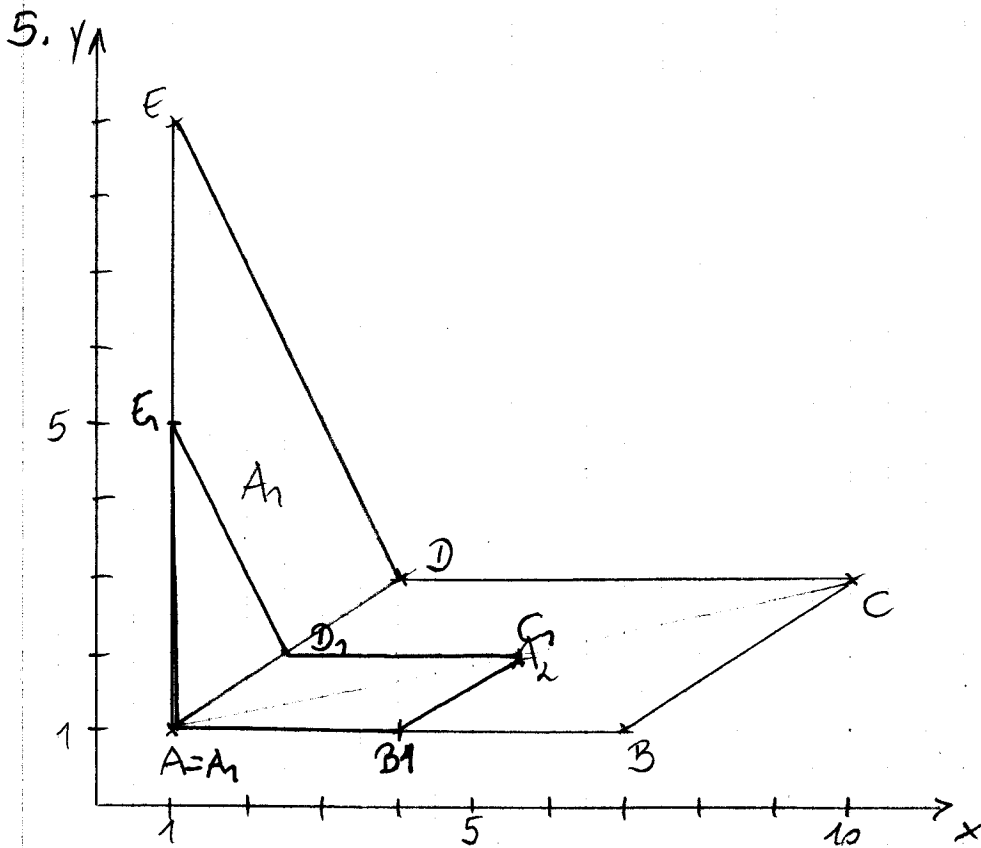
$\alpha + \beta + \gamma = 180^\circ$
 $\gamma = 180^\circ - \alpha - \beta$
 $\underline{\underline{\gamma = 90^\circ}}$



A_1 : $ABCD$ Dreieck $\frac{5LE \cdot 5LE}{2} = \underline{12,5 FE}$

A_2 : $A_1B_1C_1D_1$ $\frac{10LE \cdot 10LE}{2} = \underline{50 FE}$

$\frac{A_1}{A_2} = \frac{12,5 FE}{50 FE} = \frac{1}{4} = \underline{\underline{1:4}}$



$$A_1 = \frac{g \cdot h}{2} = \frac{8LE \cdot 3LE}{2} = 12 FE$$

$$A_2 = g \cdot h = 6LE \cdot 2LE = 12 FE$$

$$\left. \begin{array}{l} A_1 = 12 FE \\ A_2 = 12 FE \end{array} \right\} \underline{A_{ges} = 24 FE}$$

c) 1 : 50 → Flächen 1 : 2500

$$A = 24 \text{ cm}^2 \cdot 2500 = 60000 \text{ cm}^2 = 6 \text{ m}^2$$

→ 2 Anstriche ~ 12 m²

$$1 \text{ l} \hat{=} 4 \text{ m}^2$$

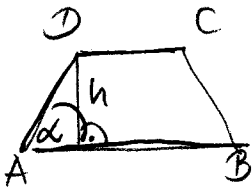
$$x \hat{=} 12 \text{ m}^2$$

$$x = 3 \text{ l}$$

$$3 \text{ l} : 0,75 \text{ l} = 4$$

Es sind 4 Flaschen Farbe nötig.

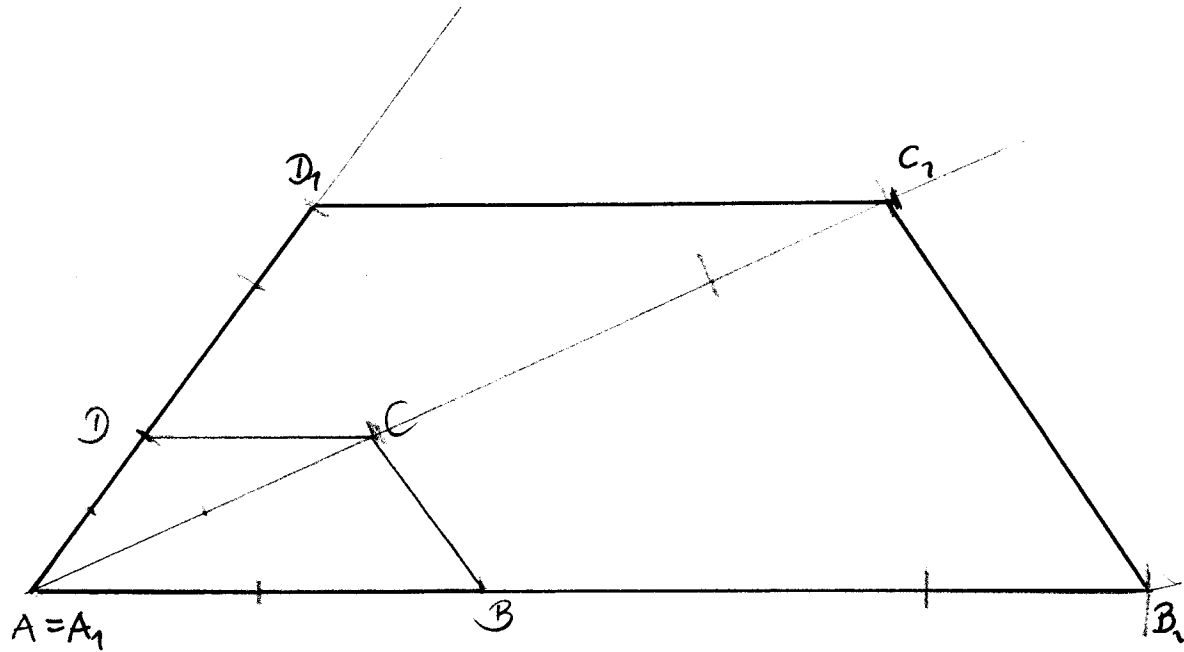
6.



$$\begin{aligned}\overline{AB} &= 6 \text{ cm} \\ \alpha &= 53^\circ \\ \overline{AD} &= 2,5 \text{ cm} \\ \overline{CD} &= 3 \text{ cm}\end{aligned}$$

$$\begin{aligned}b) \sin \alpha &= \frac{h}{\overline{AD}} \quad \& \quad h = \sin \alpha \cdot \overline{AD} \\ & & & \quad \underline{\underline{h = 2 \text{ cm}}}\end{aligned}$$

a) c)



$$\begin{aligned}d) \quad \overline{A_2B_2} &= 90 \text{ cm} \\ \overline{AB} &= 6 \text{ cm}\end{aligned} \quad \left. \vphantom{\begin{aligned} \overline{A_2B_2} &= 90 \text{ cm} \\ \overline{AB} &= 6 \text{ cm} \end{aligned}} \right\} 15 = k$$

$$\overline{A_2D_2} = 15 \cdot \overline{AD} = \underline{\underline{37,5 \text{ cm}}}$$

$$\sphericalangle A_2D_2C_2 = \underline{\underline{128^\circ}}$$