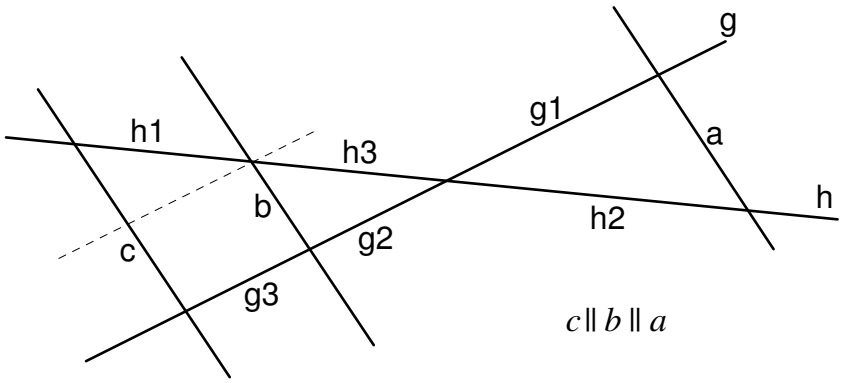
Lösungen zu Übungsblatt Geometie - Strahlensätze

1. a) $\frac{h1}{g3} = \frac{h2}{g1}$

b) $\frac{g3}{g2} = \frac{h1}{h3}$

c) $\frac{c}{a} = \frac{h1+h3}{h2}$

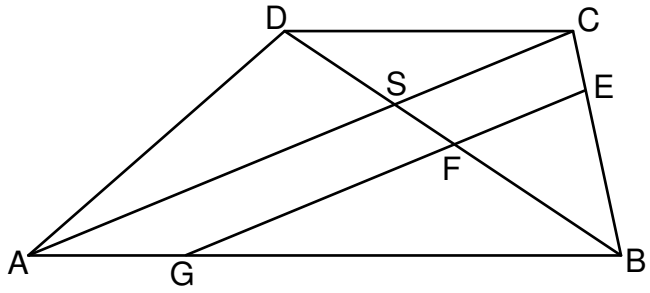


$c \parallel b \parallel a$

d) $\frac{g2}{h3} = \frac{g1}{h2}$ e) $\frac{b}{c} = \frac{h3}{h3+h1}$ f) $\frac{h2}{h1+h3} = \frac{g1}{g2+g3}$ g) $\frac{g2}{b} = \frac{g3}{c-b}$

h) $\frac{a}{h2} = \frac{b}{h3}$ i) $\frac{h3}{h2} = \frac{b}{a}$ k) $\frac{c}{b} = \frac{g3+g2}{g2}$

2.



a) $\frac{\overline{BE}}{\overline{BC}} = \frac{5}{5+2} = \underline{\underline{\frac{5}{7}}}$

b) $\overline{EG} : \overline{AC} = 5:7 \Rightarrow \overline{EG} = \frac{5}{7} \cdot \overline{AC} = \frac{5}{7} \cdot 14cm = \underline{\underline{10cm}}$.

c) $\frac{\overline{CS}}{\overline{SA}} = \frac{\overline{CD}}{\overline{AB}} = \frac{12cm}{16cm} = \frac{3}{4}$

$$\left.\begin{array}{l} \Rightarrow \overline{CS} = \frac{3}{7} \cdot \overline{AC} = \underline{\underline{6cm}} \\ \Rightarrow \overline{SA} = \frac{4}{7} \cdot \overline{AC} = \underline{\underline{8cm}} \end{array}\right\} \overline{CS} + \overline{SA} = 14cm = \overline{AC}$$

d) $\frac{\overline{BS}}{\overline{DS}} = \frac{\overline{AB}}{\overline{CD}} \Rightarrow \overline{BS} = \frac{\overline{AB}}{\overline{CD}} \cdot \overline{DS} = \frac{16cm}{12cm} \cdot 10{,}5cm = \underline{\underline{14cm}}$

$\frac{\overline{BF}}{\overline{BS}} = \frac{5}{7} \Rightarrow \overline{BF} = \frac{5}{7} \cdot \overline{BS} = \frac{5}{7} \cdot 14cm = \underline{\underline{10cm}}$