

Test Strahlensätze

$$\textcircled{1} \quad \left. \begin{array}{l} a = 6m \\ b = 9m \\ c = 12m \end{array} \right\} 1:400 \quad \left\{ \begin{array}{l} a' = 1.5cm \\ b' = 2.25cm \\ c' = 3cm \end{array} \right.$$

$$\textcircled{2} \quad 6m : 20 = 600cm : 20 = 30cm$$

$$2m^2 : 20^2 = 20'600cm^2 : 400 = 50cm^2$$

$$60l : 20^3 = 60'600ml : 8'000 = 7.5ml$$

$$\textcircled{3} \quad k^2 = \frac{1}{2500} \quad \Rightarrow \quad k = \frac{1}{50} = 1:50$$

$$\textcircled{4} \quad X: \quad \frac{a}{a+b} = \frac{x-c}{d-c} \quad \frac{9}{12} = \frac{x-1}{7}$$

$$\frac{a(d-c)}{a+b} + c = x$$

$$\begin{array}{l} 63 = 12x - 12 \\ 75 = 12x \quad \Rightarrow \quad x = \frac{75}{12} = \underline{\underline{\frac{25}{4}}} \end{array}$$

$$\frac{9 \cdot (8-1)}{9+3} + 1 = \frac{63}{12} + 1 = \underline{\underline{\frac{25}{4}}} = 6.25$$

$$\textcircled{5} \quad \frac{a}{a+x} = \frac{b}{c} \Leftrightarrow \frac{a+x}{a} = \frac{c}{b} \Rightarrow a+x = \frac{ac}{b}$$

$$\cancel{x} = \frac{ac}{b} - a$$

$$x = \frac{ac - ab}{b} = \frac{a(c-b)}{b} = \frac{10(4.5 - 1.5)}{1.5}$$

$$x = \frac{30}{1.5} = 20$$

$$\frac{10}{10+x} = \frac{1.5}{4.5} = \frac{1}{3}$$

$$10 \cdot 3 = 10 + x$$

$$20 = x$$

$$x = 20 ;$$

$$\frac{a}{b} = \frac{y}{d} \Rightarrow y = \frac{ad}{b} = \frac{25}{1.5} = \frac{50}{3} = \underline{\underline{16.\bar{6}}}$$

$$\textcircled{6} \quad 20 - x = \overline{BC}$$

$$\frac{\overline{BC} - x}{\overline{BC}} = \frac{x}{\overline{AC}}$$

$$\frac{20 - x}{20} = \frac{x}{8} \quad | \cdot 40$$

$$\overline{AC}(\overline{BC} - x) = \overline{BC} \cdot x$$

$$40 - 2x = 5x$$

$$\overline{AC} \cdot \overline{BC} - \overline{AC} \cdot x = \overline{BC} \cdot x$$

$$40 = 7x$$

$$\frac{\overline{AC} \cdot \overline{BC}}{\overline{AC} + \overline{BC}} = x$$

$$x = \frac{40}{7}$$

$$\frac{8 \cdot 20}{8 + 20} = \frac{160}{28} = \frac{40}{7}$$

$$\frac{20 - x}{20} = \frac{\overline{BC} - x}{\overline{BC}} = \frac{y+1}{y+y+1} = \frac{y+1}{2y+1}$$

$$20 - \frac{40}{7} = \frac{140}{7} - \frac{40}{7} = \frac{100}{7}$$

$$\frac{100}{7}(2y+1) = 20(y+1)$$

$$10(2y+1) = 14(y+1)$$

$$20y + 10 = 14y + 14$$

$$6y = 4$$

$$y = \frac{2}{3}$$