

1. a.) $9 \cdot \left(\frac{5}{6}\right)^2 = \frac{9}{1} \cdot \frac{25}{36} = \frac{25}{4} \llcorner$

b.) $10 : \left(9 \cdot \frac{5}{6}\right) = 10 : \frac{45}{6} = \frac{20}{1} \cdot \frac{2}{45} = \frac{4}{3} \llcorner$

c.) $\left(2 - \frac{5}{6}\right)^2 = \left(\frac{7}{6}\right)^2 = \frac{49}{36} \llcorner$

d.) $6 \cdot \frac{5}{6} - 6 \cdot \left(\frac{5}{6}\right)^2 = 5 - 6 \cdot \frac{25}{36} = \frac{30}{6} - \frac{25}{6} = \frac{5}{6} \llcorner$

(4) e.) $\left(6 \cdot \frac{5}{6} - 6\right)^2 = (5 - 6)^2 = (-1)^2 = 1 \llcorner$

f.) $\sqrt{\frac{25}{48} \cdot \frac{5}{6}} = 6 \quad \sqrt{\frac{25 \cdot 5}{2 \cdot 6}} = \sqrt{\frac{25}{4}} = \frac{5}{2} \llcorner$

g.) $1 : \left(\frac{5}{6} + 1\right) = 1 : \frac{11}{6} = 1 \cdot \frac{6}{11} = \frac{6}{11} \llcorner$

h.) $\left(\frac{5}{6}\right)^2 : \left(1 - \frac{5}{6}\right) = \frac{25}{36} : \frac{1}{6} = \frac{25}{36} \cdot \frac{6}{1} = \frac{25}{6} \llcorner$

2. a.) $2 \cdot \frac{4}{3} - (-1) \cdot \sqrt{2}^2 = \frac{8}{3} + 2 = \frac{8}{3} + \frac{6}{3} = \frac{14}{3} \quad 1$

b.) $\left(\frac{4}{3} \cdot \sqrt{2}\right)^2 = \frac{16}{9} \cdot 2 = \frac{32}{9} \quad 1$

(4) c.) $(-1) : \frac{4}{3} - \sqrt{10} \cdot \sqrt{2} = -\frac{3}{4} - 10 = -\frac{43}{4} \quad 1$

d.) $\left(\frac{4}{3} \cdot (-1) : \sqrt{2}\right)^2 = \frac{16}{9} = 2 = \frac{8}{9} \quad 1$

3. a.) $\frac{17}{90} = \frac{34}{180}, \frac{17}{10} = \frac{34}{20} \Rightarrow \frac{34}{190} \quad 1$

(3) b.) $\frac{11}{12} = \sqrt{\frac{121}{144}}, \frac{11}{13} = \sqrt{\frac{121}{169}} \Rightarrow \sqrt{\frac{121}{168}} \quad 1$

c.) $\sqrt{999} \approx 31,606, \sqrt{1000} \approx 31,623 \Rightarrow \frac{3'161}{100} \quad 1$

4.

$$b = \sqrt{(12 \cdot \sqrt{8})^2 - (8 \cdot \sqrt{12})^2} = \sqrt{144 \cdot 8 - 64 \cdot 12}$$

$$= \sqrt{1152 - 768} = \sqrt{384}$$

$$= \sqrt{64 \cdot 6} = \underline{\underline{8 \cdot \sqrt{6} \text{ cm}}}$$

5.

$$a^2 = 148^2 = 48$$

$$b^2 = (3 \cdot \sqrt{32})^2 = 9 \cdot 32 = 288$$

$$c^2 = (\sqrt{15} \cdot 4)^2 = 15 \cdot 16 = 240$$

$\Rightarrow a^2 + c^2 = b^2 \Rightarrow$ Ja, das Dreieck ist rechtwinklig.

6.

$$\frac{x}{4} + 4 = \frac{1}{4} \quad | \cdot 4$$

$$x + 16 = 1 \quad | -16$$

$$x = \underline{\underline{-15}}$$

Zahl: -15

~~17 Punkte~~