LÖSUNGEN

1.)a)

$$\left(6\frac{3}{7} - 6\frac{2}{7}\right) : 8 + \frac{3}{7} =$$
$$= \frac{1}{7} \cdot \frac{1}{8} + \frac{3}{7} =$$
$$= \frac{1}{56} + \frac{24}{56} = \frac{25}{56}$$

b)

$$\left(4\frac{1}{4} - 2\frac{1}{2}\right) : 3 =$$
$$= \left(3\frac{5}{4} - 2\frac{2}{4}\right) : 3 =$$
$$= 1\frac{3}{4} \cdot \frac{1}{3} = \frac{7}{4} \cdot \frac{1}{3} = \frac{7}{12}$$

c)

$$\frac{1}{14} + 5\frac{4}{7} : \frac{2}{5} - 2\frac{3}{8} \cdot 5 =$$
$$= \frac{1}{14} + \frac{39}{7} \cdot \frac{5}{2} - \frac{19}{8} \cdot \frac{5}{1} =$$
$$= \frac{1}{14} + \frac{195}{14} - \frac{95}{8} =$$
$$= \frac{1}{14} + 13\frac{13}{14} - 11\frac{7}{8} =$$
$$= 14 - 11\frac{7}{8} =$$
$$= 13\frac{8}{8} - 11\frac{7}{8} = 2\frac{1}{8}$$

d)

$$\left(8\frac{3}{4} - 6\right) \cdot 9\frac{1}{7} =$$
$$= 2\frac{3}{4} \cdot 9\frac{1}{7} = \frac{11}{4} \cdot \frac{64}{7} =$$
$$= \frac{176}{7} = 25\frac{1}{7}$$

e)

$$\left(3\frac{1}{2} - 2\frac{2}{5} + 2\frac{17}{100}\right) : \left(4\frac{9}{10} - \frac{7}{5} + \frac{1}{2}\right) =$$
$$= \left(\frac{7}{2} - \frac{12}{5} + \frac{217}{100}\right) \cdot \left(\frac{49}{10} - \frac{7}{5} + \frac{1}{2}\right) =$$
$$= \left(\frac{350}{100} - \frac{240}{100} + \frac{217}{100}\right) \cdot \left(\frac{49}{10} - \frac{14}{10} + \frac{5}{10}\right) =$$
$$= \frac{327}{100} \cdot \frac{40}{10} = 13\frac{2}{25}$$

f)

$$3\frac{4}{15} - \left(4\frac{2}{3} - 2\right) + \left(8\frac{7}{10} - 4\frac{4}{5}\right) =$$
$$= 3\frac{4}{15} - 2\frac{2}{3} + \left(7\frac{17}{10} - 4\frac{8}{10}\right) =$$
$$= 2\frac{19}{15} - 2\frac{10}{15} + 3\frac{9}{10} =$$
$$= \frac{9}{15} + 3\frac{9}{10} = \frac{6}{10} + 3\frac{9}{10} =$$
$$= 3\frac{15}{10} = \underline{4\frac{1}{2}}$$

g)

$$2\frac{1}{2} \cdot 1\frac{3}{5} - \frac{1}{13} \cdot 2\frac{8}{9} + 1\frac{1}{14} \cdot 1\frac{11}{45} =$$
$$= \frac{5}{2} \cdot \frac{8}{5} - \frac{1}{13} \cdot \frac{26}{9} + \frac{15}{14} \cdot \frac{56}{45} =$$
$$= 4 - \frac{2}{9} + \frac{4}{3} =$$
$$= \frac{36}{9} - \frac{2}{9} + \frac{12}{9} = \frac{46}{9} = \underline{5\frac{1}{9}}$$

h)

$$\frac{3}{16} + 1\frac{1}{7} + \frac{3}{4} \cdot \left(5\frac{1}{20} - 4\frac{1}{12}\right) =$$
$$= \frac{3}{16} + 1\frac{1}{7} + \frac{3}{4} \cdot \left(5\frac{3}{60} - 4\frac{5}{60}\right) =$$
$$= \frac{3}{16} + 1\frac{1}{7} + \frac{3}{4} \cdot \frac{58}{60} =$$
$$= \frac{3}{16} + \frac{8}{7} + \frac{29}{40} = \frac{105}{560} + \frac{640}{560} + \frac{406}{560} =$$
$$= \frac{1151}{560} = \underline{2\frac{31}{560}}$$

i)

$$4\frac{1}{2} - 1\frac{5}{6} \cdot 1\frac{1}{4} + \frac{3}{5} \cdot \left(1\frac{5}{6} - 1\frac{5}{12}\right) =$$
$$= \frac{9}{2} - \frac{11}{6} \cdot \frac{5}{4} + \frac{3}{5} \cdot \left(1\frac{10}{12} - 1\frac{5}{12}\right) =$$
$$= \frac{9}{2} - \frac{55}{24} + \frac{3}{5} \cdot \frac{5}{12} =$$
$$= \frac{108}{24} - \frac{55}{24} + \frac{6}{24} = \frac{59}{24} = \underline{2\frac{11}{24}}$$

j)

$$3\frac{2}{5} - 1\frac{13}{20} + 4\frac{1}{3} \cdot 1\frac{2}{13} + 9\frac{1}{4} : 4\frac{1}{9} =$$
$$= 3\frac{8}{20} - 1\frac{13}{20} + \frac{13}{3} \cdot \frac{15}{13} + \frac{37}{4} \cdot \frac{9}{37} =$$
$$= 1\frac{15}{20} + 5 + 2\frac{1}{4} = 8\frac{4}{4} = \underline{9}$$

2.)

$40{,}5\,ha - 3 \cdot 4\frac{1}{5}\,ha - 2 \cdot 6\frac{3}{4}\,ha - 7\frac{1}{3}\,ha =$

$= 40\frac{1}{2}\,ha - 12\frac{3}{5}\,ha - 12\frac{6}{4_2}\,ha - 7\frac{1}{3}\,ha =$

$= 27\,ha - 12\frac{3}{5}\,ha - 7\frac{1}{3}\,ha =$

$= 14\frac{2}{5}\,ha - 7\frac{1}{3}\,ha =$

$= 14\frac{6}{15}\,ha - 7\frac{5}{15}\,ha = \underline{\underline{7\frac{1}{15}\,ha}}$

A.: Es bleiben $7\frac{1}{15}$ ha unverkauft.

$7\frac{1}{15}\,ha - \frac{1}{3} \cdot 7\frac{1}{15}\,ha - \frac{1}{6} \cdot 7\frac{1}{15}\,ha - \frac{1}{4} \cdot 7\frac{1}{15}\,ha =$

$= 7\frac{1}{15}\,ha - \frac{1}{3} \cdot \frac{106}{15}\,ha - \frac{1}{3_6} \cdot \frac{106^{53}}{15}\,ha - \frac{1}{2_4} \cdot \frac{106^{53}}{15}\,ha =$

$= 7\frac{1}{15}\,ha - \frac{106}{45}\,ha - \frac{53}{45}\,ha - \frac{53}{30}\,ha =$

$= 7\frac{6}{90}\,ha - 2\frac{32}{90}\,ha - 1\frac{16}{90}\,ha - 1\frac{69}{90}\,ha =$

$= 7\frac{6}{90}\,ha - 4\frac{117}{90}\,ha =$

$= 6\frac{96}{90}\,ha - 5\frac{27}{90}\,ha = 1\frac{69}{90}\,ha = \underline{\underline{1\frac{23}{30}\,ha}}$

$1\,ha = 100\,a = 10000\,m^2$

$1{,}7\dot{6}\,ha = \underline{\underline{17666{,}\dot{6}\,m^2}}$

A.: Die Eltern behalten $17666{,}\dot{6}\,m^2$.

3.)

$\frac{90}{360} \cdot \frac{3}{4}\,\ell = 270\,\ell$

270 ℓ Apfelsaft waren im Behälter.

$270 : \frac{5}{8} = 270^{54} \cdot \frac{8}{5} = 432$

A.: Man hätte 432 Fläschchen zu je $\frac{5}{8}$ ℓ füllen können.

4.)

$\frac{3}{4}$ von $\frac{9}{6} = \frac{3}{4} \cdot \frac{9}{6_2} = \underline{\frac{9}{8}} = \underline{\underline{1\frac{1}{8}}}$

5.)

$\frac{1}{4} \cdot x = 720$

$x = \underline{2880}$ $\quad x - 720 = \underline{2160}$

A.: Der Mantel kostet jetzt 2160 €. Früher hat er 2880 € gekostet.

6.)

$60\,\ell - \cancel{28}^{7} \cdot \frac{3}{\cancel{4}} \ell - \cancel{10}^{5} \cdot \frac{5}{\cancel{8}_{4}} \ell =$

$= 60\,\ell - (21\,\ell + 6\frac{1}{4}\,\ell) =$

$= 60\,\ell - 27\frac{1}{4}\,\ell = \underline{32\frac{3}{4}\,\ell}$

$32\frac{3}{4} : \frac{3}{8} = \frac{131}{4} \cdot \frac{8}{3}^{2} = \frac{262}{3} = \underline{87\frac{1}{3}}$

A.: Es lassen sich 87 Flaschen zu $\frac{3}{8}\,\ell$ befüllen.

7.)

$10 \cdot \frac{3}{4}\,\ell = \frac{30}{4}\,\ell = \underline{7\frac{1}{2}\,\ell}$

$7\frac{1}{2} : \frac{3}{10} = \frac{\cancel{15}^{5}}{\cancel{2}} \cdot \frac{\cancel{10}^{5}}{\cancel{3}} = \underline{25}$

A.: Der Vorrat reicht 25 Tage.

8.)

$\frac{3}{16} \cdot x = 600\,m$

$x = \frac{16 \cdot \cancel{600}^{200}}{\cancel{3}} = 3200\,m = \underline{3{,}2\,km}$

A.: Ihr Schulweg ist 3,2 km lang.

9.)

$\frac{7}{10} : \frac{\cancel{25}^{1}}{\cancel{1000}_{40}} = \frac{7}{10} \cdot 40 = \underline{28\ mal}$

A.: Man kann 28 mal aus einer $\frac{7}{10}\,\ell$ Saftflasche 25 ml Saft entnehmen.

10.)

$10\,m : \frac{3}{4}\,m = 10 \cdot \frac{4}{3} = \frac{40}{3} = \underline{13\frac{1}{3}}$

A.: Man kann 13 Bänder abschneiden.

$\frac{1}{3} \cdot \frac{3}{4}\,m = \underline{\frac{1}{4}\,m}$

A.: $\frac{1}{4}$ m Rest bleibt übrig.

11.a)

$\frac{3}{4} + 4\frac{1}{5} : 1\frac{13}{15} - 1\frac{5}{6} : 1\frac{7}{15} =$

$= \frac{3}{4} + \frac{21}{5} : \frac{28}{15} - \frac{11}{6} : \frac{22}{15} =$

$= \frac{3}{4} + \frac{21}{5} \cdot \frac{15}{28} - \frac{11}{6} \cdot \frac{15}{22} = \frac{3}{4} + \frac{9}{4} - \frac{5}{4} = \frac{7}{4} = \underline{1\frac{3}{4}}$

b)

$\left(\frac{11}{15} + \frac{9}{20}\right) : \left(\frac{7}{12} - \frac{1}{15}\right) - \frac{9}{31} =$

$= \left(\frac{44}{60} + \frac{27}{60}\right) : \left(\frac{35}{60} - \frac{4}{60}\right) - \frac{9}{31} =$

$= \frac{71}{60} : \frac{31}{60} - \frac{9}{31} = \frac{71}{60} \cdot \frac{60}{31} - \frac{9}{31} =$

$= \frac{71}{31} - \frac{9}{31} = \frac{62}{31} = \underline{2}$

c)

$6\frac{3}{5} : 2\frac{14}{15} + 1\frac{7}{8} : 2\frac{1}{4} - 1\frac{1}{3} =$

$= \frac{33}{5} : \frac{44}{15} + \frac{15}{8} : \frac{9}{4} - \frac{4}{3} =$

$= \frac{33}{5} \cdot \frac{15}{44} + \frac{15}{8} \cdot \frac{4}{9} - \frac{4}{3} =$

$= \frac{9}{4} + \frac{5}{6} - \frac{4}{3} = \frac{27}{12} + \frac{10}{12} - \frac{16}{12} =$

$= \frac{21}{12} = 1\frac{9}{12} = \underline{1\frac{3}{4}}$