

Lösungen zum Aufgabenblatt für den 29.9.2004

$$\begin{aligned}
1. \quad & 4\frac{2}{3} : 8 + 3 \cdot \left(10\frac{5}{18} - 98\frac{2}{3} : 12\right) - \left(2\frac{1}{2}\right)^2 = \frac{14}{3} : 8 + 3 \cdot \left(10\frac{5}{18} - \frac{296}{3} : 12\right) - \left(\frac{5}{2}\right)^2 \\
& = \frac{14}{3 \cdot 8} + 3 \cdot \left(10\frac{5}{18} - \frac{296}{3 \cdot 12}\right) - \frac{25}{4} = \frac{7}{3 \cdot 4} + 3 \cdot \left(10\frac{5}{18} - \frac{148}{3 \cdot 6}\right) - 6\frac{1}{4} \\
& = \frac{7}{12} + 3 \cdot \left(10\frac{5}{18} - 8\frac{4}{18}\right) - 6\frac{1}{4} = \frac{7}{12} + 3 \cdot 2\frac{1}{18} - 6\frac{1}{4} = \frac{7}{12} + \frac{3 \cdot 37}{18} - 6\frac{1}{4} \\
& = \frac{7}{12} + \frac{37}{6} - 6\frac{1}{4} = \frac{7}{12} + 6\frac{1}{6} - 6\frac{1}{4} = \frac{14}{24} + 6\frac{4}{24} - 6\frac{6}{24} = 6\frac{18}{24} - 6\frac{6}{24} = \frac{12}{24} = \frac{1}{2}
\end{aligned}$$

$$\begin{aligned}
2. \quad & 28\frac{2}{3} : 7\frac{2}{3} + 21\frac{1}{2} : 7\frac{2}{3} - 47\frac{1}{4} : 7\frac{2}{3} = \left(28\frac{2}{3} + 21\frac{1}{2} - 47\frac{1}{4}\right) : 7\frac{2}{3} \\
& = \left(28\frac{8}{12} + 21\frac{6}{12} - 47\frac{3}{12}\right) : 7\frac{2}{3} \\
& = \left(49\frac{14}{12} - 47\frac{3}{12}\right) : 7\frac{2}{3} = 2\frac{11}{12} : 7\frac{2}{3} = \frac{35}{12} : \frac{23}{3} = \frac{35 \cdot 3}{12 \cdot 23} = \frac{35}{4 \cdot 23} = \frac{35}{92}
\end{aligned}$$

$$\begin{aligned}
3. \quad & \frac{3\frac{1}{4} - 1\frac{1}{3} - 2\frac{3}{5} : 3\frac{9}{10}}{1\frac{5}{21} - \frac{7}{3} : 2\frac{1}{6}} = \frac{3\frac{4}{3} - \frac{13}{5} : \frac{39}{10}}{\frac{26}{21} - \frac{7}{3} : \frac{13}{6}} = \frac{1 - \frac{13 \cdot 10}{5 \cdot 39}}{\frac{2 \cdot 2}{21 \cdot 3 \cdot 13}} = \frac{1 - \frac{2}{3}}{\frac{4}{3}} = \frac{1}{3} : \frac{4}{3} = \frac{1}{3} \cdot \frac{3}{4} = \frac{1}{4}
\end{aligned}$$

$$4. \quad \frac{8}{15} : \left(\frac{28}{45} : 7\right) = \frac{8}{15} : \frac{28}{45 \cdot 7} = \frac{8 \cdot 45 \cdot 7}{15 \cdot 28} = \frac{2 \cdot 45 \cdot 7}{15 \cdot 7} = \frac{2 \cdot 45}{15} = \frac{2 \cdot 3}{1} = 6$$

$$5. \quad 2\frac{25}{26} \cdot 2\frac{19}{33} \cdot \frac{39}{35} = \frac{77}{26} \cdot \frac{85}{33} \cdot \frac{39}{35} \stackrel{7}{=} \frac{11 \cdot 85 \cdot 39}{26 \cdot 33 \cdot 5} \stackrel{11}{=} \frac{85 \cdot 39}{26 \cdot 3 \cdot 5} \stackrel{13}{=} \frac{85 \cdot 3}{2 \cdot 3 \cdot 5} \stackrel{3 \cdot 5}{=} \frac{17}{2} = 8\frac{1}{2}$$

$$\begin{aligned}
6. \quad & 2\frac{4}{15} \cdot 3 - \frac{4}{5} + \frac{3}{20} \cdot 4 + 2 \cdot \left(\frac{7}{10} - \frac{1}{5}\right) = \frac{34 \cdot 3}{15} - \frac{4}{5} + \frac{3 \cdot 4}{20} + 2 \cdot \left(\frac{7}{10} - \frac{2}{10}\right) \\
& = \frac{34}{5} - \frac{4}{5} + \frac{3}{5} + 2 \cdot \frac{5}{10} = \frac{30}{5} + \frac{3}{5} + 2 \cdot \frac{1}{2} = \frac{33}{5} + 1 = 6\frac{3}{5} + 1 = 7\frac{3}{5}
\end{aligned}$$

$$\begin{aligned}
7. \quad & \frac{\frac{11}{18} - \left(\frac{2}{3}\right)^2}{\left(10\frac{1}{4} - 5\frac{1}{2}\right) : 14\frac{1}{4}} = \frac{\frac{11}{18} - \frac{4}{9}}{\left(9\frac{5}{4} - 5\frac{2}{4}\right) : 14\frac{1}{4}} = \frac{\frac{11}{18} - \frac{8}{18}}{4\frac{3}{4} : 14\frac{1}{4}} = \frac{\frac{3}{18}}{\frac{19}{4} : \frac{57}{4}} = \frac{\frac{1}{6}}{\frac{19 \cdot 4}{4 \cdot 57}} = \frac{\frac{1}{6}}{\frac{1}{3}} = \frac{1}{6} \cdot \frac{3}{1} = \frac{1}{2}
\end{aligned}$$

$$\begin{aligned}
8. \quad & \frac{3\frac{3}{7} - 1\frac{3}{7} : 2\frac{1}{2} - 1\frac{1}{2} : \frac{7}{4}}{\left(3\frac{3}{4} + 5\frac{5}{6} - 6\frac{2}{3}\right) : \frac{7}{12}} = \frac{3\frac{3}{7} - \frac{10}{7} : \frac{5}{2} - \frac{3 \cdot 4}{2 \cdot 7}}{\left(3\frac{9}{12} + 5\frac{10}{12} - 6\frac{8}{12}\right) : \frac{7}{12}} = \frac{3\frac{3}{7} - \frac{10 \cdot 2}{7 \cdot 5} - \frac{6}{7}}{2\frac{11}{12} : \frac{7}{12}} = \frac{3\frac{3}{7} - \frac{4}{7} - \frac{6}{7}}{\frac{35}{12} \cdot \frac{12}{7}} \\
& = \frac{2\frac{10}{7} - \frac{10}{7}}{\frac{35}{7}} = \frac{2}{5}
\end{aligned}$$