

Aufgabe B0204**Klammerrechnung**

Lösen Sie die folgenden Terme:

- a) $\frac{3}{2} + \left[\frac{5}{4} + 2 \cdot \left(\frac{1}{8} + \frac{1}{4} \cdot \frac{1}{2} \right) \right]$
- b) $\frac{5}{2} \cdot \left(\frac{6}{3} \cdot \frac{1}{4} + \frac{1}{2} \right)$
- c) $\frac{7}{5} \cdot \left[\frac{5}{6} - \frac{1}{2} \cdot \left(\frac{5}{2} : \frac{7}{12} \right) \right]$
- d) $\frac{1}{6} + \frac{1}{2} \cdot \left[\frac{3}{4}a + \frac{5}{3} \cdot \left(\frac{1}{2} + \frac{1}{2} \right) \right]$
- e) $\frac{3}{5} \cdot \left[\frac{1}{2}a \cdot \left(\frac{5}{6} + \frac{13}{2}b \cdot \left(\frac{1}{2} : \frac{1}{4} \right) \right) \right]$
- f) $\left(\frac{7}{3}a - \frac{5}{8}b \right) \cdot \frac{1}{2}c$

Aufgabe B0204 (Lösungshinweise)

- a) $\frac{3}{2} + \left[\frac{5}{4} + 2 \cdot \left(\frac{1}{8} + \frac{1}{4} \cdot \frac{1}{2} \right) \right]$
- $$\begin{aligned} \frac{3}{2} + \left[\frac{5}{4} + 2 \cdot \left(\frac{1}{8} + \frac{1}{4} \cdot \frac{1}{2} \right) \right] &= \frac{3}{2} + \left[\frac{5}{4} + 2 \cdot \left(\frac{1}{8} + \frac{1}{8} \right) \right] = \frac{3}{2} + \left[\frac{5}{4} + 2 \cdot \frac{1}{4} \right] \\ &= \frac{3}{2} + \left[\frac{5}{4} + \frac{2}{4} \right] = \frac{3}{2} + \frac{7}{4} = \frac{6}{4} + \frac{7}{4} = \frac{13}{4} \end{aligned}$$
- b) $\frac{5}{2} \cdot \left(\frac{6}{3} \cdot \frac{1}{4} + \frac{1}{2} \right)$
- $$\begin{aligned} \frac{5}{2} \cdot \left(\frac{6}{3} \cdot \frac{1}{4} + \frac{1}{2} \right) &= \frac{5}{2} \cdot \left(\frac{6}{12} + \frac{1}{2} \right) = \frac{5}{2} \cdot \left(\frac{1}{2} + \frac{1}{2} \right) = \frac{5}{2} \cdot 1 = \frac{5}{2} \end{aligned}$$
- c) $\frac{7}{5} \cdot \left[\frac{5}{6} - \frac{1}{2} \cdot \left(\frac{5}{2} : \frac{7}{12} \right) \right]$
- $$\begin{aligned} \frac{7}{5} \cdot \left[\frac{5}{6} - \frac{1}{2} \cdot \left(\frac{5}{2} : \frac{7}{12} \right) \right] &= \frac{7}{5} \cdot \left[\frac{5}{6} - \frac{1}{2} \cdot \left(\frac{5 \cdot 12}{2 \cdot 7} \right) \right] \\ &= \frac{7}{5} \cdot \left[\frac{5}{6} - \frac{1}{2} \cdot \frac{30}{7} \right] = \frac{7}{5} \cdot \left[\frac{5}{6} - \frac{15}{7} \right] = \frac{7}{5} \cdot \left[\frac{35}{42} - \frac{90}{42} \right] \\ &= \frac{7}{5} \cdot \left[-\frac{55}{42} \right] = -\frac{11}{6} \end{aligned}$$

$$\text{d) } \frac{1}{6} + \frac{1}{2} \cdot \left[\frac{3}{4}a + \frac{5}{3} \cdot \left(\frac{1}{2} + \frac{1}{2} \right) \right]$$

$$\begin{aligned} \frac{1}{6} + \frac{1}{2} \cdot \left[\frac{3}{4}a + \frac{5}{3} \cdot \left(\frac{1}{2} + \frac{1}{2} \right) \right] &= \frac{1}{6} + \frac{1}{2} \cdot \left[\frac{3}{4}a + \frac{5}{3} \cdot 1 \right] = \frac{1}{6} + \frac{1}{2} \cdot \left[\frac{3}{4}a + \frac{5}{3} \right] \\ &= \frac{1}{6} + \frac{3}{8}a + \frac{5}{6} = \frac{3}{8}a + 1 \end{aligned}$$

$$\text{e) } \frac{3}{5} \cdot \left[\frac{1}{2}a \cdot \left(\frac{5}{6} + \frac{13}{2}b \cdot \left(\frac{1}{2} : \frac{1}{4} \right) \right) \right]$$

$$\begin{aligned} \frac{3}{5} \cdot \left[\frac{1}{2}a \cdot \left(\frac{5}{6} + \frac{13}{2}b \cdot \left(\frac{1}{2} : \frac{1}{4} \right) \right) \right] &= \frac{3}{5} \cdot \left[\frac{1}{2}a \cdot \left(\frac{5}{6} + \frac{13}{2}b \cdot \left(\frac{1 \cdot 4}{2 \cdot 1} \right) \right) \right] \\ &= \frac{3}{5} \cdot \left[\frac{1}{2}a \cdot \left(\frac{5}{6} + \frac{13}{2}b \cdot 2 \right) \right] = \frac{3}{5} \cdot \left[\frac{1}{2}a \cdot \left(\frac{5}{6} + 13b \right) \right] \\ &= \frac{3}{5} \cdot \left[\frac{5}{12}a + \frac{13}{2}ab \right] = \frac{\cancel{3}}{\cancel{5}} \cdot \frac{\cancel{5}}{\cancel{12}}a + \frac{3}{5} \cdot \frac{13}{2}ab \\ &= \frac{1}{4}a + \frac{39}{10}ab \end{aligned}$$

$$\text{f) } \left(\frac{7}{3}a - \frac{5}{8}b \right) \cdot \frac{1}{2}c$$

$$\left(\frac{7}{3}a - \frac{5}{8}b \right) \cdot \frac{1}{2}c = \frac{7}{6}ac - \frac{5}{16}bc$$