

Rechne die Aufgaben auf einem Extrablatt und trage nur die Ergebnisse ein!

1. Berechne:

$$4\frac{1}{5} - 1\frac{2}{7} \cdot \frac{5}{6} + \left(3\frac{1}{2} + 1\frac{1}{9}\right) : \frac{5}{18} =$$



2. Familie Meier macht einen Ausflug. Die Hinfahrt und Rückfahrt dauern je eine $\frac{3}{4}$ Stunde. Sie wandern $3\frac{7}{8}$ Stunden und für Spiele und Rast sind $2\frac{1}{2}$ Stunden vorgesehen. Wie lange dauert der Ausflug insgesamt?

Antwort: _____

3. Gegeben ist der Term

$$\frac{5}{4} \cdot \left(\frac{1}{15} + \frac{5}{36}\right)$$

a) Berechne auf 2 Wegen (einmal mit und einmal ohne Anwendung des Distributivgesetzes)

b) Begründe welcher Weg vorteilhafter ist.

4. Berechne:

a) $(+8,8) - (-1,2) =$

b) $-\frac{13}{6} + \frac{4}{15} =$

c) $\frac{5}{9} : (-0,5) =$

d) $(-3) \cdot \frac{1^2}{2} + 4\frac{1}{2} : (-3) =$

5. Berechne:

$$1\frac{1}{2} \cdot \left(2 + \frac{1}{3}\right) =$$

$$\frac{5}{6} + \frac{1}{3} \cdot \frac{2}{3} =$$

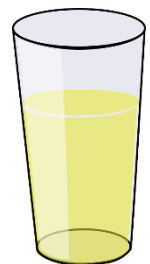
$$\frac{8}{9} - 1\frac{5}{9} \cdot \frac{3}{7} =$$

6. Für eine Apfelschorle mischt Martina $\frac{3}{4} \text{ l}$ Mineralwasser und $\frac{3}{8} \text{ l}$ Apfelsaft.

Sie verteilt das Mixgetränk gleichmäßig in 9 Gläser.

Wie viel Liter sind in jedem Glas?

Stelle zur Berechnung **einen** Term auf



1. a) $\frac{1}{2} + \frac{1}{4} \cdot \frac{2}{5} - \frac{1}{3} =$

b) $\frac{1}{12} \cdot \frac{3}{4} + \frac{4}{5} \cdot \frac{5}{6} =$

c) $9\frac{1}{2} : \frac{3}{4} - 4\frac{1}{5} : 3\frac{1}{10} =$

d) $\frac{2}{11} \cdot 3\frac{2}{5} + 5\frac{1}{2} =$

e) $\frac{2}{11} \cdot 3\frac{2}{5} + 5\frac{1}{2} =$

f) $1\frac{4}{9} : 4\frac{1}{3} - 2\frac{1}{5} : 5\frac{1}{2} =$

2. a) $\left(\frac{3}{4} + \frac{2}{5}\right) \cdot \frac{2}{3} =$

b) $\frac{5}{8} \cdot \left(2\frac{2}{3} + \frac{3}{8}\right) =$

c) $2\frac{2}{3} \cdot \left(5\frac{1}{2} + \frac{3}{7}\right) =$

d) $7\frac{4}{9} \cdot \left(1\frac{1}{3} + 1\frac{3}{8}\right) =$

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

f) $3\frac{1}{5} \cdot \left(4\frac{5}{11} - 2\frac{1}{33}\right) =$

3. a) $5 \cdot \left(\frac{3}{4} - \frac{1}{3}\right) : 4 =$

b) $\left[3 : \left(\frac{5}{8} - \frac{1}{6}\right)\right] \cdot 6 =$

c) $\frac{2}{3} \cdot \left(7\frac{7}{10} - 6\frac{4}{5}\right) \cdot 8 =$

d) $\frac{7}{8} \cdot \left(8\frac{1}{5} - \frac{5}{6}\right) : \frac{1}{4} =$

e) $7 \cdot \left(5\frac{5}{11} - 2\frac{1}{22}\right) : 2 =$

f) $2\frac{4}{5} : \left(\frac{1}{5} + \frac{7}{8}\right) : \frac{1}{5} =$

4. a) $\left(4\frac{3}{8} - \frac{1}{2} + 3\frac{3}{4}\right) - \left(2\frac{1}{5} - 1\frac{1}{2}\right) =$

b) $\left(1\frac{5}{7} + 5\frac{1}{6} - 4\frac{1}{3}\right) - \left(12\frac{4}{21} - 11\frac{3}{7}\right) =$

c) $\left(8\frac{5}{6} - \frac{1}{9} + 2\frac{2}{3}\right) + \left(8\frac{1}{9} - 5\frac{7}{12}\right) =$

5. a) $\left(5\frac{5}{6} - 4\frac{1}{8}\right) \cdot \left(\frac{1}{12} : \frac{7}{24}\right) =$

b) $\left(9\frac{1}{2} - 3\frac{5}{6}\right) : \left(5\frac{4}{5} - 1\frac{2}{3}\right) =$

6. a) $\left(1\frac{1}{8} \cdot 4\frac{8}{9} + 2\frac{2}{5} \cdot 2\frac{11}{12}\right) - \left(14\frac{2}{3} : 3\frac{1}{7} + 5\frac{1}{7} : \frac{16}{21}\right) =$

b) $\left(3\frac{4}{5} + 5\frac{19}{20}\right) : \left(5\frac{17}{24} + 8\frac{11}{12} - 1\frac{5}{8}\right) =$

c) $\left(11\frac{13}{14} - 7\frac{16}{21}\right) : \left(1\frac{5}{6} + \frac{1}{9}\right) =$

7. a) $\left(9\frac{11}{30} - 5\frac{11}{18} + 2\frac{14}{45}\right) : \left(1\frac{14}{15} + \frac{2}{3} + 1\frac{4}{9}\right) =$

b) $\left(1\frac{1}{7} + 2\frac{2}{3}\right) \cdot \left(1\frac{1}{2} - \frac{2}{13}\right) : \left(1\frac{1}{3} + 1\frac{3}{13}\right) =$

c) $\left[\left(2\frac{2}{3} - 1\frac{5}{11}\right) : \left(1\frac{5}{11} + \frac{2}{5}\right)\right] : \left(1\frac{1}{9} - \frac{5}{6}\right) =$

8. Stelle nur den Term auf, nicht ausrechnen

Addiere zum Produkt von $\frac{1}{2}$ und $\frac{5}{8}$ die Differenz von 5 und $4\frac{8}{19}$.

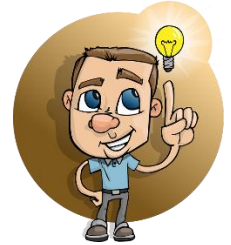
9. Berechne folgende Aufgaben. Kürze so weit wie möglich und wandle alle Ergebnisse in gemischte Zahlen um.

$$\left(6\frac{7}{8} - 3\frac{2}{3}\right) \cdot \frac{2}{5} + \frac{3}{5} =$$



1. Berechne und gib das Ergebnis als gemischte Zahl in Grundform an

$$-\frac{9}{8} + \left[3\frac{3}{4} - \left(5\frac{3}{5} - 4\frac{1}{2} \right) + \frac{7}{20} \right] =$$



2. Berechne, kürze zuvor, wenn es möglich ist.

$$4 \cdot \left(\frac{3}{8} \right)^2 = \underline{\hspace{2cm}} \qquad \frac{1}{2} : \left(\frac{1}{4} - \frac{1}{5} \right) = \underline{\hspace{2cm}}$$

$$5\frac{2}{3} \cdot 1\frac{1}{17} = \underline{\hspace{2cm}} \qquad \frac{2}{3} - \frac{5}{6} \cdot \frac{3}{10} + \frac{1}{2} = \underline{\hspace{2cm}}$$

3. Berechne

$$6\frac{1}{2} - \frac{1}{2} : \left(\frac{1}{2} + 1\frac{1}{6} \right) = \qquad 2\frac{2}{3} \cdot \left(\frac{3}{4} - \frac{5}{7} \right) =$$

$$\left(\frac{8}{9} + \frac{2}{3} \right) : \left(\frac{5}{3} + \frac{3}{5} \right) = \qquad \frac{7}{8} + \frac{3}{4} : \frac{1}{2} =$$

4. Welche Klammern können entfallen?

a) $2 \cdot \left(\frac{7}{8} \cdot \frac{8}{3} \right) \cdot \left(\frac{7}{3} + \frac{2}{5} \right) =$

b) $\frac{7}{8} + \left[\left(\frac{1}{2} + \frac{3}{4} \right) \cdot 2 \right] - \frac{6}{8} =$

c) $\frac{\left(\frac{3}{4} - \frac{1}{2} \right) - \left[\left(\frac{8}{9} \cdot \frac{3}{8} \right) + \frac{1}{6} \right]}{\left[\frac{4}{27} - \left(3 \cdot \frac{2}{9} \right) \cdot \frac{1}{3} \right]} =$

d) $\frac{2}{3} + 3 \cdot \left(\frac{\frac{1}{7} + \frac{2}{14} + \frac{3}{28}}{\left(\frac{1}{7} \cdot \frac{9}{4} \right) \cdot 3} \right) + \left(7 \cdot \frac{11}{28} \right) =$

e) $\left[\left(2 \cdot \frac{\frac{1}{2} + \frac{2}{3} - \frac{1}{6}}{\frac{2}{3} \cdot \frac{1}{2}} \right) + \frac{\left(\frac{1}{4} + 2 \right)}{\frac{3}{4} + 2} \right] + \frac{2}{3} \cdot \frac{1}{2} =$

f) $2 + \frac{1}{8} \cdot \left(\frac{3}{7} + \frac{2}{3} + \frac{1}{4} \right) + \left(3 \cdot \frac{1}{2} \right) =$

5. Schreibe als Bruch. Setze Klammern dabei nur da, wo sie auch nötig sind:

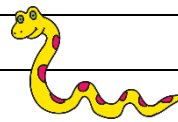
a) $(1 : 3 + (1 : 6) \cdot 2 - (5 : 12 - 1 : 4)) : (1 : 5 + 5 \cdot (1 : 5 - 1 : 10) - 2 \cdot (2 : 5 - 3 : 10)) =$

b) $[3 \cdot (1 : 8) + 5 : 8 - 1 : 2] : \{ 1 : 2 \cdot [3 + 1 : 8 - (7 : 4 + 3 : 8)] \} =$

6. Berechne

$$\frac{3}{4} \cdot \left(\frac{1}{6} + \frac{4}{5} \right) = \qquad \left(\frac{5}{9} - \frac{2}{5} \right) \cdot \frac{3}{8} = \qquad \frac{5}{14} \cdot \left(\frac{2}{9} + \frac{4}{7} \right) =$$

$$\frac{9}{10} \cdot \left(\frac{7}{8} - \frac{5}{12} \right) = \qquad 1\frac{5}{6} \cdot \left(4\frac{1}{2} + \frac{2}{3} \right) = \qquad \left(2\frac{1}{2} - 1\frac{1}{5} \right) \cdot 3\frac{1}{5} =$$



1. Berechne:

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

$$3\frac{5}{12} \cdot \left(4\frac{5}{6} - \frac{1}{2} + 1\frac{1}{8} \right) =$$

$$5\frac{1}{5} \cdot \left(3\frac{1}{10} + 4\frac{4}{15} + 1\frac{29}{30} \right) =$$

$$4\frac{3}{4} \cdot \left(2\frac{1}{5} + \frac{7}{8} - 1\frac{1}{2} \right) =$$

$$5\frac{1}{4} \cdot \left(\frac{3}{5} + 2\frac{7}{15} - \frac{1}{2} \right) =$$

$$4\frac{1}{3} \cdot \left(5\frac{1}{5} + 2\frac{1}{2} + 6\frac{1}{5} \right) =$$

$$\left(8\frac{1}{3} + 5\frac{1}{2} \right) \cdot \left(3\frac{1}{5} - 2\frac{1}{10} \right) =$$

$$\left(3\frac{3}{10} + 5\frac{19}{20} \right) \cdot \left(\frac{3}{4} + \frac{7}{20} \right) =$$

$$\left(\frac{9}{2} \cdot \frac{8}{3} - \frac{3}{10} \right) : \frac{4}{5} =$$

$$\left(\frac{3}{4} \cdot \frac{2}{9} + \frac{5}{8} \right) \cdot \frac{2}{5} =$$

$$\frac{9}{2} \cdot \left(\frac{8}{3} - \frac{3}{10} \right) : \frac{4}{5} =$$

$$\frac{3}{4} \cdot \left(\frac{2}{9} + \frac{5}{8} \cdot \frac{2}{5} \right) =$$

$$\frac{4}{9} : \frac{10}{27} - \left(\frac{11}{15} \cdot \frac{5}{12} + \frac{5}{6} \right) =$$

$$6\frac{1}{2} - \frac{1}{2} : \left(\frac{2}{3} + 1\frac{1}{6} \right) =$$

$$4\frac{1}{2} : \left(\frac{7}{10} - \frac{2}{5} \right) + \frac{3}{8}$$

$$\frac{3}{4} + \left(2 - \frac{2}{5} \right) \cdot \frac{5}{6} =$$

$$5\frac{1}{5} \cdot \left(3\frac{1}{10} + 4\frac{4}{15} + 1\frac{29}{30} \right) =$$

$$\left(8\frac{1}{3} + 5\frac{1}{2} \right) \cdot \left(3\frac{1}{5} - 2\frac{1}{10} \right) =$$

$$\left(3\frac{7}{18} - 1\frac{1}{3} \right) \cdot \left(3\frac{1}{4} - 1\frac{3}{16} \right) =$$

$$\left(6\frac{1}{3} - 4\frac{5}{9} \right) \cdot \left(\frac{3}{7} + 2\frac{1}{21} \right) =$$

$$\left(3\frac{3}{10} + 5\frac{19}{20} \right) \cdot \left(\frac{3}{4} + \frac{7}{20} \right) =$$

$$\left(9\frac{3}{16} - 8\frac{3}{4} \right) \cdot \left(\frac{3}{8} + 4\frac{5}{32} \right) =$$

$$\left(7\frac{4}{15} - 4\frac{3}{5} \right) \cdot \left(2\frac{5}{6} + 5\frac{1}{12} \right) =$$

$$\frac{2}{5} \cdot \left(\frac{15}{8} + \frac{3}{4} : \frac{1}{2} \right) =$$

$$\left(\frac{2}{5} \cdot \frac{25}{8} + \frac{3}{4} \right) : \frac{3}{4} =$$

$$\frac{3}{4} + \left(2 - \frac{2}{5} \right) \cdot \frac{5}{6} =$$

$$\left(\frac{7}{9} + \frac{1}{3} \right) + \left(\frac{1}{2} + \frac{4}{13} \right) =$$

$$\left(\frac{8}{15} + \frac{1}{10} \right) + \left(\frac{3}{5} + \frac{3}{8} \right) =$$

$$\left(5\frac{8}{15} + 3\frac{1}{3} \right) + \left(7\frac{1}{2} + \frac{1}{4} \right) =$$

$$\left(\frac{1}{4} + \frac{1}{3} \right) + \left(1\frac{8}{9} + 4\frac{2}{7} \right) =$$

$$\left(\frac{3}{4} + 4\frac{7}{10} \right) + \left(3\frac{3}{8} + \frac{2}{5} \right) =$$

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

2. Berechne:

$$-\frac{3}{7} + \left(-\frac{1}{2} \right) =$$

$$\frac{1}{4} + \left(-\frac{1}{6} \right) =$$

$$-\frac{3}{5} + \left(-\frac{7}{10} \right) =$$

Berechne

$$\left(5\frac{3}{5} + 6\frac{1}{2}\right) - \left(15\frac{1}{2} - 8\frac{1}{4}\right) =$$

$$\left(23\frac{1}{10} + 7\frac{1}{8}\right) + 4\frac{1}{2} - \left(4\frac{1}{3} + \frac{1}{5}\right) =$$

$$3\frac{8}{9} - \left(3\frac{1}{2} - 2\frac{1}{4}\right) =$$

$$5\frac{1}{3} - \left(\frac{50}{51} + \frac{5}{17}\right) =$$

$$22\frac{1}{5} - \left(15\frac{1}{2} + 4\frac{2}{7}\right) =$$

$$\left(\frac{23}{4} - \frac{5}{3}\right) + \left(\frac{15}{16} - \frac{3}{8}\right) =$$

$$\left(\frac{7}{12} - \frac{2}{5}\right) + \left(\frac{6}{5} - \frac{3}{4}\right) =$$

$$\left(\frac{23}{24} - \frac{1}{8}\right) - \left(\frac{1}{2} - \frac{1}{4}\right) =$$

$$\left(\frac{9}{10} - \frac{5}{6}\right) - \left(\frac{4}{5} - \frac{3}{4}\right) =$$

$$\left(\frac{11}{12} - \frac{7}{9}\right) + \left(\frac{5}{6} - \frac{3}{4}\right) =$$

$$\left(\frac{25}{27} - \frac{1}{2}\right) - \left(\frac{5}{9} - \frac{1}{6}\right) =$$

$$\left(\frac{5}{3} - \frac{1}{2}\right) - \frac{1}{1} =$$

$$\left(\frac{7}{8} - \frac{3}{20}\right) + \left(\frac{1}{2} - \frac{1}{4}\right) =$$

$$\left(\frac{11}{15} - \frac{1}{3}\right) - \left(\frac{5}{6} - \frac{4}{5}\right) =$$

$$\left(\frac{15}{5} + \frac{10}{2}\right) + \frac{36}{12} =$$

$$\frac{8}{13} + \left(\frac{2}{5} + \frac{1}{2}\right) =$$

$$\frac{32}{8} + \left(\frac{11}{13} + \frac{6}{39}\right) =$$

$$\left(\frac{17}{1} + \frac{1}{17}\right) + \left(\frac{1}{2} + \frac{2}{1}\right) =$$

$$\left(\frac{18}{3} + \frac{3}{18}\right) + \left(\frac{1}{6} + \frac{2}{3}\right) =$$

$$\left(\frac{2}{5} + \frac{7}{10}\right) + \left(\frac{1}{2} + \frac{4}{10}\right) =$$

$$\frac{\left(6\frac{4}{5} - 4\frac{1}{2}\right) \cdot \frac{3}{5}}{\left(2\frac{5}{6} + 1\frac{1}{4}\right) \cdot \frac{3}{5}} =$$

$$\frac{\left(1\frac{22}{25} + 2\frac{4}{15}\right) \cdot \frac{7}{4}}{\left(2\frac{1}{4} + 3\frac{1}{5}\right)} =$$

$$\frac{5\frac{3}{4} - 2 : \frac{3}{4}}{5\frac{1}{8} : 4\frac{1}{3}} =$$

$$\frac{\left(\frac{5}{3} + \frac{1}{2}\right) \cdot \frac{1}{5} - \frac{1}{10}}{\frac{3}{4} : \frac{5}{7} - \frac{5}{6} + \frac{8}{15}} =$$

$$\frac{\left(\frac{7}{10} \cdot \frac{5}{3}\right) : \frac{1}{2}}{2\frac{3}{5} : \left(\frac{3}{4} + \frac{4}{3}\right)} =$$

$$\frac{2\frac{1}{5} \cdot \left(\frac{17}{3} - 2\frac{1}{2}\right)}{\left(1\frac{1}{5} - \frac{3}{4}\right) \cdot 3 + \frac{1}{4}} =$$

$$\frac{3\frac{1}{8} \cdot \left(\frac{17}{5} - 2\frac{3}{5}\right)}{\left(\frac{4}{5} - \frac{3}{4}\right) \cdot 2 + \frac{1}{2}} =$$

$$\frac{\left(\frac{7}{5} + 2\frac{1}{6} \cdot \frac{3}{5}\right) : \frac{7}{3}}{\left(3 : 1\frac{4}{5} - \frac{2}{9}\right) \cdot \frac{6}{5}} =$$

$$\frac{4 : \left(2 : 3\frac{1}{4} - \frac{4}{15}\right)}{\left(2 \cdot 3\frac{1}{4} - 2\frac{1}{2} \cdot \frac{7}{5}\right)} =$$

$$\frac{\frac{5}{8} \cdot 16 - 7\frac{1}{8} : 19 + 30 : 7\frac{1}{5}}{\left(5\frac{2}{9} - \frac{1}{9} \cdot 38\right) : 24} =$$

$$\frac{\left(\frac{5}{6} + \frac{5}{3} \cdot \frac{5}{4}\right) \cdot 4\frac{1}{5}}{\left(6\frac{2}{7} - \frac{5}{7} \cdot \frac{3}{5}\right) : 2} =$$

$$\frac{4\frac{4}{5} : \left(1 + \frac{2}{5} \cdot 2\frac{3}{4}\right)}{\left(\frac{3}{8} \cdot 4 - 3 \cdot \frac{3}{8}\right) \cdot \frac{4}{3}} =$$



1. Berechne:

$$4\frac{1}{5} - 1\frac{2}{7} \cdot \frac{5}{6} + \left(3\frac{1}{2} + 1\frac{1}{9}\right) : \frac{5}{18} = 4\frac{1}{5} - \frac{9 \cdot 5}{7 \cdot 6} + \left(4\frac{9}{18} + \frac{2}{18}\right) \cdot \frac{18}{5} = 4\frac{1}{5} - \frac{15}{14} + 4\frac{11}{18} \cdot \frac{18}{5} =$$

$$4\frac{14}{70} - 1\frac{5}{70} + \frac{83 \cdot 18}{18 \cdot 5} = 3\frac{9}{70} + \frac{83}{5} = 3\frac{9}{70} + 16\frac{3}{5} = 19\frac{9}{70} + \frac{42}{70} = 19\frac{51}{70}$$

2. Familie Meier macht einen Ausflug. Die Hinfahrt und Rückfahrt dauern je $\frac{3}{4}$ Stunden.

Sie wandern $3\frac{7}{8}$ Stunden und für Spiele und Rast sind $2\frac{1}{2}$ Stunden vorgesehen. Wie lange dauert der Ausflug insgesamt?

$$\frac{3}{4} + \frac{3}{4} + 3\frac{7}{8} + 2\frac{1}{2} = \frac{6}{4} + 3\frac{7}{8} + 2\frac{4}{8} = \frac{12}{8} + 3\frac{7}{8} + 2\frac{4}{8} = 5\frac{23}{8} = 7\frac{7}{8}$$

Der Ausflug dauert insgesamt $7\frac{7}{8}$ Stunden (= 7 Stunden 52 Minuten 30 Sekunden)

3 a) 1. Weg ohne Distributivgesetz:

$$\frac{5}{4} \cdot \left(\frac{1}{15} + \frac{5}{36}\right) = \frac{5}{4} \cdot \left(\frac{12}{180} + \frac{25}{180}\right) = \frac{5}{4} \cdot \frac{37}{180} = \frac{37}{4 \cdot 36} = \frac{37}{144}$$

2. Weg mit Distributivgesetz:

$$\frac{5}{4} \cdot \left(\frac{1}{15} + \frac{5}{36}\right) = \frac{5}{4} \cdot \frac{1}{15} + \frac{5}{4} \cdot \frac{5}{36} = \frac{1}{4} \cdot \frac{1}{3} + \frac{5}{4} \cdot \frac{5}{36} = \frac{1}{12} + \frac{25}{144} = \frac{12}{144} + \frac{25}{144} = \frac{37}{144}$$

In diesem Fall erscheint der Weg ohne Distributivgesetz günstiger, da die Rechnung kürzer ist.

4. Berechne:

a) $(+8,8) - (-1,2) = 8,8 + 1,2 = 10$

b) $-\frac{13}{6} + \frac{4}{15} = -\frac{65}{30} + \frac{8}{30} = -\frac{57}{30} = 1\frac{27}{30} = 1\frac{9}{10}$

c) $\frac{5}{9} : (-0,5) = \frac{5}{9} : \left(-\frac{5}{9}\right) = -\frac{5 \cdot 9}{9 \cdot 5} = -1$

d) $(-3) \cdot \frac{12}{2} + 4\frac{1}{2} : (-3) = (-3) \cdot \frac{1}{2} + \frac{9}{4} \cdot \left(-\frac{1}{3}\right) = -\frac{3}{2} - \frac{9}{4 \cdot 3} = -\frac{3}{2} - \frac{3}{4} = -\frac{6}{4} - \frac{3}{4} = -\frac{9}{4} = -2\frac{1}{4}$

5. Berechne:

$$1\frac{1}{2} \cdot \left(2 + \frac{1}{3}\right) = \frac{3}{2} \cdot \left(\frac{6}{3} + \frac{1}{3}\right) = \frac{3}{2} \cdot \frac{7}{3} = \frac{3 \cdot 7}{2 \cdot 3} = \frac{1 \cdot 7}{2 \cdot 1} = \frac{7}{2} = 3\frac{1}{2}$$

$$\frac{5}{6} + \frac{1}{3} \cdot \frac{2}{3} = \frac{5}{6} + \frac{2}{9} = \frac{15}{18} + \frac{4}{18} = \frac{15+4}{18} = \frac{19}{18} = 1\frac{1}{18}$$

$$\frac{8}{9} - 1\frac{5}{9} \cdot \frac{3}{7} = \frac{8}{9} - \frac{14}{9} \cdot \frac{3}{7} = \frac{8}{9} - \frac{14 \cdot 3}{9 \cdot 7} = \frac{8}{9} - \frac{2 \cdot 1}{3 \cdot 1} = \frac{8}{9} - \frac{2}{3} = \frac{8}{9} - \frac{6}{9} = \frac{2}{9}$$

6. Für eine Apfelschorle mischt Martina $\frac{3}{4}$ ℓ Mineralwasser und $\frac{3}{8}$ ℓ Apfelsaft.

Sie verteilt das Mixgetränk gleichmäßig in 9 Gläser.

Wie viel Liter sind in jedem Glas?

Stelle zur Berechnung **einen** Term auf.

Rechnung:

$$\left(\frac{3}{4} + \frac{3}{8}\right) : 9 = \left(\frac{6}{8} + \frac{3}{8}\right) : \frac{9}{1} = \frac{9}{8} : \frac{9}{1} = \frac{9}{8} \cdot \frac{1}{9} = \frac{9 \cdot 1}{8 \cdot 9} = \frac{1 \cdot 1}{8 \cdot 1} = \frac{1}{8}$$

Antwort: $\frac{1}{8}$ l sind in jedem Glas.

Bruch - Terme	Lösung	Station 2
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1.

$$a) \frac{1}{2} + \frac{1}{4} \cdot \frac{2}{5} - \frac{1}{3} = \frac{1}{2} + \frac{2}{20} - \frac{1}{3} = \frac{1}{2} + \frac{1}{10} - \frac{1}{3} = \frac{15}{30} + \frac{3}{30} - \frac{10}{30} = \frac{8}{30} = \frac{4}{15}$$

$$b) \frac{1}{12} \cdot \frac{3}{4} + \frac{4}{5} \cdot \frac{5}{6} = \frac{1}{4 \cdot 4} + \frac{4}{6} = \frac{1}{16} + \frac{2}{3} = \frac{3}{48} + \frac{32}{48} = \frac{35}{48}$$

$$c) 9 \frac{1}{2} : \frac{3}{4} - 4 \frac{1}{5} : 3 \frac{1}{10} = \frac{19}{2} \cdot \frac{4}{3} + \frac{21}{5} : \frac{31}{10} = \frac{38}{3} + \frac{21 \cdot 10}{5 \cdot 31} = \frac{38}{3} + \frac{42}{31} = \frac{1444 - 126}{114} = \frac{1318}{114} = \frac{659}{57} = 9 \frac{11}{57}$$

$$d) \frac{2}{11} \cdot 3 \frac{2}{5} + 5 \frac{1}{2} = \frac{2}{11} \cdot \frac{17}{5} + \frac{11}{2} = \frac{34}{55} + \frac{11}{2} = \frac{68}{110} + \frac{605}{110} = \frac{673}{110} = 6 \frac{13}{110}$$

$$e) 5 \frac{3}{7} \cdot 2 \frac{1}{5} - 3 \frac{3}{5} \cdot 1 \frac{7}{9} = \frac{38}{7} \cdot \frac{11}{5} - \frac{18}{5} \cdot \frac{16}{9} = \frac{418}{35} - \frac{32}{5} = \frac{418}{35} - \frac{224}{35} = \frac{194}{35} = 5 \frac{19}{35}$$

$$f) 1 \frac{4}{9} : 4 \frac{1}{3} - 2 \frac{1}{5} : 5 \frac{1}{2} = \frac{13}{9} \cdot \frac{3}{13} - \frac{11}{5} \cdot \frac{2}{11} = \frac{3}{9} - \frac{2}{5} = \frac{1}{3} - \frac{2}{5} = \frac{5 - 6}{15} = -\frac{1}{15}$$

$$2. a) \left(\frac{3}{4} + \frac{2}{5}\right) \cdot \frac{2}{3} = \left(\frac{15}{20} + \frac{8}{20}\right) \cdot \frac{2}{3} = \frac{23}{20} \cdot \frac{2}{3} = \frac{23}{10 \cdot 3} = \frac{23}{30}$$

$$b) \frac{5}{8} \cdot \left(2 \frac{2}{3} + \frac{3}{8}\right) = \frac{5}{8} \cdot \frac{8}{3} + \frac{5}{8} \cdot \frac{3}{8} = \frac{5}{3} + \frac{15}{64} = \frac{320}{192} + \frac{45}{192} = \frac{365}{192} = 1 \frac{173}{192}$$

$$c) 2 \frac{2}{3} \cdot \left(5 \frac{1}{2} + \frac{3}{7}\right) = \frac{8}{3} \cdot \frac{11}{2} + \frac{8}{3} \cdot \frac{3}{7} = \frac{44}{3} + \frac{8}{7} = \frac{308}{21} + \frac{24}{21} = \frac{332}{21} = 15 \frac{17}{21}$$

$$d) 7 \frac{4}{9} \cdot \left(1 \frac{1}{3} + 1 \frac{3}{8}\right) = 7 \frac{4}{9} \cdot \left(\frac{32}{24} + \frac{33}{24}\right) = \frac{67}{9} \cdot \frac{65}{24} = \frac{4355}{216} = 20 \frac{35}{216}$$

$$e) 2 \frac{2}{3} \cdot \left(4 \frac{1}{2} - 2 \frac{2}{7}\right) = \frac{8}{3} \cdot \left(\frac{9}{2} - \frac{16}{7}\right) = \frac{8 \cdot 9}{3 \cdot 2} - \frac{8 \cdot 16}{3 \cdot 7} = \frac{24}{2} - \frac{128}{21} = 12 - 6 \frac{2}{21} = 5 \frac{19}{21}$$

$$f) 3 \frac{1}{5} \cdot \left(4 \frac{5}{11} - 2 \frac{1}{33}\right) = \frac{16}{5} \cdot \left(2 \frac{5}{11} - \frac{1}{33}\right) = \frac{16}{5} \cdot \left(2 \frac{15}{33} - \frac{1}{33}\right) = \frac{16}{5} \cdot 2 \frac{14}{33} = \frac{16 \cdot 80}{5 \cdot 33} = \frac{16 \cdot 16}{33} =$$

$$\frac{256}{33} = 7 \frac{25}{33}$$

$$3. a) 5 \cdot \left(\frac{3}{4} - \frac{1}{3}\right) : 4 = 5 \cdot \left(\frac{9}{12} - \frac{4}{12}\right) \cdot \frac{1}{4} = \frac{5}{4} \cdot \frac{5}{12} = \frac{25}{48}$$

$$b) \left[3 : \left(\frac{5}{8} - \frac{1}{6}\right)\right] \cdot 6 = \left[3 : \left(\frac{15}{24} - \frac{4}{24}\right)\right] \cdot 6 = \left[3 : \frac{11}{24}\right] \cdot 6 = \frac{3 \cdot 24}{11} \cdot 6 = \frac{72}{11} \cdot 6 = \frac{432}{11} = 39 \frac{3}{11}$$

$$c) \frac{2}{3} \cdot \left(7 \frac{7}{10} - 6 \frac{4}{5}\right) \cdot 8 = \frac{2 \cdot 8}{3} \cdot \left(7 \frac{7}{10} - 6 \frac{8}{10}\right) = \frac{16}{3} \cdot \frac{9}{10} = \frac{8 \cdot 3}{5} = \frac{24}{5} = 4 \frac{4}{5}$$

$$d) \frac{7}{8} \cdot \left(8\frac{1}{5} - \frac{5}{6}\right) : \frac{1}{4} = \frac{7 \cdot 4}{8} \left(\frac{246}{30} - \frac{25}{30}\right) = \frac{7}{2} \cdot \frac{221}{30} = \frac{1547}{60} = 25\frac{47}{60}$$

$$e) 7 \cdot \left(5\frac{5}{11} - 2\frac{1}{22}\right) : 2 = \frac{7}{2} \cdot \left(3\frac{10}{22} - \frac{1}{22}\right) = \frac{7}{2} \cdot \frac{75}{22} = \frac{525}{44} = 11\frac{41}{44}$$

$$f) 2\frac{4}{5} : \left(\frac{1}{5} + \frac{7}{8}\right) : \frac{1}{5} = \frac{14 \cdot 5}{5} : \left(\frac{8}{40} + \frac{35}{40}\right) = 14 : \frac{43}{40} = \frac{14 \cdot 40}{43} = \frac{560}{43} = 13\frac{1}{43}$$

4.)

$$a) \left(4\frac{3}{8} - \frac{1}{2} + 3\frac{3}{4}\right) - \left(2\frac{1}{5} - 1\frac{1}{2}\right) = \left(\frac{35}{8} - \frac{4}{8} + \frac{30}{8}\right) - \left(\frac{22}{10} - \frac{15}{10}\right) = \frac{61}{8} - \frac{7}{10} = \frac{305}{40} - \frac{28}{40} = \frac{277}{40} = 6\frac{37}{40}$$

$$b) \left(1\frac{5}{7} + 5\frac{1}{6} - 4\frac{1}{3}\right) - \left(12\frac{4}{21} - 11\frac{3}{7}\right) = \left(\frac{72}{42} + \frac{217}{42} - \frac{182}{42}\right) - \left(11\frac{25}{21} - 11\frac{9}{21}\right) = \frac{107}{42} - \frac{16}{21} = \frac{107}{42} - \frac{32}{42} = \frac{75}{42} = \frac{25}{14} = 1\frac{11}{14}$$

$$c) \left(8\frac{5}{6} - \frac{1}{9} + 2\frac{2}{3}\right) + \left(8\frac{1}{9} - 5\frac{7}{12}\right) = \left(8\frac{15}{18} - \frac{2}{18} + 2\frac{12}{18}\right) + \left(7\frac{40}{36} - 5\frac{21}{36}\right) = 10\frac{25}{18} + 2\frac{19}{36} = 11\frac{14}{36} + 2\frac{19}{36} = 13\frac{33}{36} = 13\frac{11}{12}$$

5.)

$$a) \left(5\frac{5}{6} - 4\frac{1}{8}\right) \cdot \left(\frac{1}{12} : \frac{7}{24}\right) = \left(5\frac{20}{24} - 4\frac{3}{24}\right) \cdot \left(\frac{1}{12} \cdot \frac{24}{7}\right) = \frac{41}{24} \cdot \frac{2}{7} = \frac{41}{12 \cdot 7} = \frac{41}{84}$$

$$b) \left(9\frac{1}{2} - 3\frac{5}{6}\right) : \left(5\frac{4}{5} - 1\frac{2}{3}\right) = \left(8\frac{9}{6} - 3\frac{5}{6}\right) : \left(5\frac{12}{15} - 1\frac{10}{15}\right) = \left(5\frac{4}{6}\right) : \left(4\frac{2}{15}\right) = \frac{34}{6} : \frac{62}{15} = \frac{34}{6} \cdot \frac{15}{62} = \frac{17 \cdot 5}{3 \cdot 31} = \frac{85}{62} = 1\frac{23}{62}$$

6.)

$$a) \left(1\frac{1}{8} \cdot 4\frac{8}{9} + 2\frac{2}{5} \cdot 2\frac{11}{12}\right) - \left(14\frac{2}{3} : 3\frac{1}{7} + 5\frac{1}{7} : \frac{16}{21}\right) = \left(\frac{9}{8} \cdot \frac{44}{9} + \frac{12}{5} \cdot \frac{35}{12}\right) - \left(\frac{44}{3} : \frac{22}{7} + \frac{36}{7}\right) : \frac{16}{21} = \left(\frac{11}{2} + \frac{35}{5}\right) - \left(\frac{44}{3} \cdot \frac{7}{22} + \frac{36}{7} \cdot \frac{21}{16}\right) = 5\frac{1}{2} + 7 - \left(\frac{2 \cdot 7}{3} + \frac{9 \cdot 3}{4}\right) = 12\frac{1}{2} - \left(\frac{14}{3} + \frac{27}{4}\right) = 12\frac{1}{2} - \left(4\frac{2}{3} + 6\frac{3}{4}\right) = 12\frac{6}{12} - \left(4\frac{8}{12} + 6\frac{9}{12}\right) = 12\frac{6}{12} - 10\frac{17}{12} = 11\frac{18}{12} - 10\frac{17}{12} = 1\frac{1}{12}$$

$$b) \left(3\frac{4}{5} + 5\frac{19}{20}\right) : \left(5\frac{17}{24} + 8\frac{11}{12} - 1\frac{5}{8}\right) = \left(3\frac{16}{20} + 5\frac{19}{20}\right) : \left(5\frac{17}{24} + 8\frac{22}{24} - 1\frac{15}{24}\right) = \left(8\frac{35}{20}\right) : \left(12\frac{24}{24}\right) = 9\frac{15}{20} : 13 = 9\frac{3}{4} : 13 = \frac{39}{4 \cdot 13} = \frac{3}{4}$$

$$c) \left(11\frac{13}{14} - 7\frac{16}{21}\right) : \left(1\frac{5}{6} + \frac{1}{9}\right) = \left(11\frac{39}{42} - 7\frac{32}{42}\right) : \left(1\frac{15}{18} + \frac{2}{18}\right) = \left(4\frac{7}{42}\right) : \left(1\frac{17}{18}\right) = 4\frac{1}{6} : \frac{35}{18} = \frac{25}{6} \cdot \frac{18}{35} = \frac{5 \cdot 3}{7} = \frac{15}{7} = 2\frac{1}{7}$$

$$7.) \text{ a) } \left(9\frac{11}{30} - 5\frac{11}{18} + 2\frac{14}{45}\right) : \left(1\frac{14}{15} + \frac{2}{3} + 1\frac{4}{9}\right) = \left(9\frac{33}{90} - 5\frac{55}{90} + 2\frac{28}{90}\right) : \left(1\frac{42}{45} + \frac{30}{45} + 1\frac{20}{45}\right) =$$

$$\left(6\frac{33-55+28}{90}\right) : \left(2\frac{42+30+20}{45}\right) = 6\frac{6}{90} : 2\frac{92}{45} = 6\frac{1}{15} : 4\frac{2}{45} = \frac{91}{15} : \frac{182}{45} = \frac{91}{15} \cdot \frac{45}{182} = \frac{3}{2} = 1\frac{1}{2}$$

$$\text{b) } \left(1\frac{1}{7} + 2\frac{2}{3}\right) \cdot \left(1\frac{1}{2} - \frac{2}{13}\right) : \left(1\frac{1}{3} + 1\frac{3}{13}\right) = \left(1\frac{3}{21} + 2\frac{14}{21}\right) \cdot \left(1\frac{13}{26} - \frac{4}{26}\right) : \left(1\frac{13}{39} + 1\frac{9}{39}\right) =$$

$$\left(3\frac{17}{21}\right) \cdot \left(1\frac{9}{26}\right) : \left(2\frac{22}{39}\right) = \frac{80}{21} \cdot \frac{35}{26} : \frac{100}{39} = \frac{80}{21} \cdot \frac{35}{26} \cdot \frac{39}{100} = \frac{4 \cdot 5 \cdot 3}{5 \cdot 3 \cdot 2} = 2$$

$$\text{c) } \left[\left(2\frac{2}{3} - 1\frac{5}{11}\right) : \left(1\frac{5}{11} + \frac{2}{5}\right)\right] : \left(1\frac{1}{9} - \frac{5}{6}\right) = \left[\left(2\frac{22}{33} - 1\frac{15}{33}\right) : \left(1\frac{25}{55} + \frac{22}{55}\right)\right] : \left(1\frac{2}{18} - \frac{15}{18}\right) =$$

$$\left[\left(1\frac{7}{33}\right) : \left(1\frac{47}{55}\right)\right] : \left(\frac{5}{18}\right) = \left[\frac{40}{33} \cdot \frac{55}{102}\right] \cdot \frac{18}{5} = \frac{2 \cdot 20}{17} = \frac{40}{17} = 2\frac{6}{17}$$

8. Stelle nur den Term auf, nicht ausrechnen

Addiere zum Produkt von $\frac{1}{2}$ und $\frac{5}{8}$ die Differenz von 5 und $4\frac{8}{19}$

$$\frac{1}{2} \cdot \frac{5}{8} + \left(5 - 4\frac{8}{19}\right)$$

9. Berechne folgende Aufgaben. Kürze so weit wie möglich und wandle alle Ergebnisse in gemischte Zahlen um.

$$\left(6\frac{7}{8} - 3\frac{2}{3}\right) \cdot \frac{2}{5} + \frac{3}{5} =$$

$$\left(6\frac{21}{24} - 3\frac{16}{24}\right) \cdot \frac{2}{5} + \frac{3}{5} = 3\frac{5}{24} \cdot \frac{2}{5} + \frac{3}{5} = \frac{77}{24} \cdot \frac{2}{5} + \frac{3}{5} = \frac{154}{60} + \frac{3}{5} =$$

$$\frac{77}{30} + \frac{18}{30} = \frac{95}{30} = 3\frac{5}{30} = 3\frac{1}{6}$$

Bruch - Terme

Lösung

Station 3

1. Berechne und gib das Ergebnis als gemischte Zahl in Grundform an

$$-\frac{9}{8} + \left[3\frac{3}{4} - \left(5\frac{3}{5} - 4\frac{1}{2}\right) + \frac{7}{20}\right] =$$

$$-\frac{9}{8} + \left[3\frac{3}{4} - \left(5\frac{6}{10} - 4\frac{5}{10}\right) + \frac{7}{20}\right] =$$

$$-\frac{9}{8} + \left[3\frac{3}{4} - 1\frac{1}{10} + \frac{7}{20}\right] =$$

$$-\frac{9}{8} + \left[3\frac{15}{20} - 1\frac{2}{20} + \frac{7}{20}\right] =$$

$$-\frac{9}{8} + 3 = -\frac{9}{8} + \frac{24}{8} = \frac{15}{8} = 1\frac{7}{8}$$

2. Berechne, kürze zuvor, wenn es möglich ist.

$$4 \cdot \left(\frac{3}{8}\right)^2 = 4 \cdot \frac{9}{64} = \frac{4 \cdot 9}{64} = \frac{9}{16}$$

$$\frac{1}{2} : \left(\frac{1}{4} - \frac{1}{5} \right) = \frac{1}{2} : \left(\frac{5}{20} - \frac{4}{20} \right) = \frac{1}{2} : \frac{1}{20} = \frac{1}{2} \cdot \frac{20}{1} = \frac{10}{1} = 10$$

$$5 \frac{2}{3} \cdot 1 \frac{1}{17} = \frac{17}{3} \cdot \frac{18}{17} = \frac{6}{1} = 6$$

$$\frac{2}{3} - \frac{5}{6} \cdot \frac{3}{10} + \frac{1}{2} = \frac{2}{3} - \frac{1}{4} + \frac{1}{2} = \frac{8}{12} - \frac{3}{12} + \frac{6}{12} = \frac{5}{12} + \frac{6}{12} = \frac{11}{12}$$

3. Berechne

$$6 \frac{1}{2} - \frac{1}{2} : \left(\frac{1}{2} + 1 \frac{1}{6} \right) = 6 \frac{1}{2} - \frac{1}{2} : \left(\frac{3}{6} + 1 \frac{1}{6} \right) = 6 \frac{1}{2} - \frac{1}{2} : 1 \frac{2}{3} = 6 \frac{1}{2} - \frac{1 \cdot 3}{2 \cdot 5} =$$

$$6 \frac{1}{2} - \frac{3}{10} = 6 \frac{5}{10} - \frac{3}{10} = 6 \frac{2}{10} = 6 \frac{1}{5}$$

$$2 \frac{2}{3} \cdot \left(\frac{3}{4} - \frac{5}{7} \right) = 2 \frac{2}{3} \cdot \left(\frac{21}{28} - \frac{20}{28} \right) = 2 \frac{2}{3} \cdot \frac{1}{28} = \frac{8 \cdot 1}{3 \cdot 28} = \frac{2}{3 \cdot 7} = \frac{2}{21}$$

$$\left(\frac{8}{9} + \frac{2}{3} \right) : \left(\frac{5}{3} + \frac{3}{5} \right) = \left(\frac{8}{9} + \frac{6}{9} \right) : \left(\frac{25}{15} + \frac{9}{15} \right) = \frac{14}{9} : \frac{34}{15} = \frac{14 \cdot 15}{9 \cdot 34} = \frac{35}{51}$$

$$\frac{7}{8} + \frac{3}{4} : \frac{1}{2} = \frac{7}{8} + \frac{3 \cdot 2}{4 \cdot 1} = \frac{7}{8} + \frac{3}{2} = \frac{7}{8} + \frac{12}{8} = \frac{19}{8} = 2 \frac{3}{8}$$

4. Welche Klammern können entfallen?

$$\text{a)) } 2 \cdot \left(\frac{7}{8} \cdot \frac{8}{3} \right) \cdot \left(\frac{7}{3} + \frac{2}{5} \right) =$$

$$2 \cdot \frac{7}{8} \cdot \frac{8}{3} \cdot \left(\frac{7}{3} + \frac{2}{5} \right)$$

$$\text{b) } \frac{7}{8} + \left[\left(\frac{1}{2} + \frac{3}{4} \right) \cdot 2 \right] - \frac{6}{8} =$$

$$\frac{7}{8} + \left(\frac{1}{2} + \frac{3}{4} \right) \cdot 2 - \frac{6}{8}$$

$$\text{c) } \frac{\left(\frac{3}{4} - \frac{1}{2} \right) - \left[\left(\frac{8}{9} \cdot \frac{3}{8} \right) + \frac{1}{6} \right]}{\left[\frac{4}{27} - \left(3 \cdot \frac{2}{9} \right) \cdot \frac{1}{3} \right]} =$$

$$\frac{\frac{3}{4} - \frac{1}{2} - \left(\frac{8}{9} \cdot \frac{3}{8} + \frac{1}{6} \right)}{\frac{4}{27} - 3 \cdot \frac{2}{9} \cdot \frac{1}{3}}$$

$$\text{d) } \frac{2}{3} + 3 \cdot \left(\frac{\frac{1}{7} + \frac{2}{14} + \frac{3}{28}}{\left(\frac{1}{7} \cdot \frac{9}{4} \right) \cdot 3} \right) + \left(7 \cdot \frac{11}{28} \right) =$$

$$\frac{2}{3} + 3 \cdot \frac{\frac{1}{7} + \frac{2}{14} + \frac{3}{28}}{\frac{1}{7} \cdot \frac{9}{4} \cdot 3} + 7 \cdot \frac{11}{28}$$

$$\text{e) } \left[\left(2 \cdot \frac{\frac{1}{2} + \frac{2}{3} - \frac{1}{6}}{\frac{2}{3} \cdot \frac{1}{2}} \right) + \frac{\left(\frac{1}{4} + 2 \right)}{\frac{3}{4} + 2} \right] + \frac{2}{3} \cdot \frac{1}{2} =$$

$$2 \cdot \frac{\frac{1}{2} + \frac{2}{3} - \frac{1}{6}}{\frac{2}{3} \cdot \frac{1}{2}} + \frac{\frac{1}{4} + 2}{\frac{3}{4} + 2} + \frac{2}{3} \cdot \frac{1}{2}$$

$$\text{f) } 2 + \frac{1}{8} \cdot \left(\frac{3}{7} + \frac{2}{3} + \frac{1}{4} \right) + \left(3 \cdot \frac{1}{2} \right) =$$

$$2 + \frac{1}{8} \cdot \left(\frac{3}{7} + \frac{2}{3} + \frac{1}{4} \right) + 3 \cdot \frac{1}{2}$$

5. Schreibe als Bruch. Setze Klammern dabei nur da, wo sie auch nötig sind:

a) $(1 : 3 + (1 : 6) \cdot 2 - (5 : 12 - 1 : 4)) : (1 : 5 + 5 \cdot (1 : 5 - 1 : 10) - 2 \cdot (2 : 5 - 3 : 10)) =$

$$\frac{\frac{1}{3} + \frac{1}{6} \cdot 2 - \left(\frac{5}{12} - \frac{1}{4} \right)}{\frac{1}{5} + 5 \cdot \left(\frac{1}{5} - \frac{1}{10} \right) - 2 \cdot \left(\frac{2}{5} - \frac{3}{10} \right)}$$

b) $[3 \cdot (1 : 8) + 5 : 8 - 1 : 2] : \{ 1 : 2 \cdot [3 + 1 : 8 - (7 : 4 + 3 : 8)] \} =$

$$\frac{3 \cdot \frac{1}{8} + \frac{5}{8} - \frac{1}{2}}{\frac{1}{2} \cdot \left[3 + \frac{1}{8} - \left(\frac{7}{4} + \frac{3}{8} \right) \right]}$$

6. Berechne

$$\frac{3}{4} \cdot \left(\frac{1}{6} + \frac{4}{5} \right) = \frac{3}{4} \cdot \frac{29}{30} = \frac{29}{40}$$

$$\left(\frac{5}{9} - \frac{2}{5} \right) \cdot \frac{3}{8} = \frac{7}{45} \cdot \frac{3}{8} = \frac{7}{120}$$

$$\frac{5}{14} \cdot \left(\frac{2}{9} + \frac{4}{7} \right) = \frac{5}{14} \cdot \frac{50}{63} = \frac{125}{441}$$

$$\frac{9}{10} \cdot \left(\frac{7}{8} - \frac{5}{12} \right) = \frac{9}{10} \cdot \frac{11}{24} = \frac{33}{80}$$

$$1\frac{5}{6} \cdot \left(4\frac{1}{2} + \frac{2}{3} \right) = 1\frac{5}{6} \cdot 5\frac{1}{6} = \frac{11 \cdot 31}{6 \cdot 6} = \frac{341}{36} = 9\frac{17}{36}$$

$$\left(2\frac{1}{2} - 1\frac{1}{5} \right) \cdot 3\frac{1}{5} = 1\frac{3}{10} \cdot 3\frac{1}{5} = \frac{13 \cdot 16}{10 \cdot 5} = \frac{13 \cdot 8}{5 \cdot 5} = \frac{104}{25} = 4\frac{4}{25}$$

Bruch - Terme	Lösung	Station 4
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1. Berechne:

$$\frac{3}{5} \cdot \left(2\frac{1}{2} - \frac{1}{3} - \frac{1}{5} \right) = \frac{3}{5} \cdot 1\frac{29}{30} = 1\frac{9}{50}$$

$$3\frac{5}{12} \cdot \left(4\frac{5}{6} - \frac{1}{2} + 1\frac{1}{8} \right) = 3\frac{5}{12} \cdot 5\frac{11}{24} = 18\frac{187}{288}$$

$$5\frac{1}{5} \cdot \left(3\frac{1}{10} + 4\frac{4}{15} + 1\frac{29}{30} \right) = 5\frac{1}{5} \cdot 9\frac{1}{3} = 48\frac{8}{15}$$

$$4\frac{3}{4} \cdot \left(2\frac{1}{5} + \frac{7}{8} - 1\frac{1}{2} \right) = 4\frac{3}{4} \cdot 1\frac{23}{40} = 7\frac{77}{160}$$

$$5\frac{1}{4} \cdot \left(\frac{3}{5} + 2\frac{7}{15} - \frac{1}{2} \right) = 5\frac{1}{4} \cdot 2\frac{17}{30} = 13\frac{19}{40}$$

$$4\frac{1}{3} \cdot \left(5\frac{1}{5} + 2\frac{1}{2} + 6\frac{1}{5} \right) = 4\frac{1}{3} \cdot 13\frac{9}{10} = 60\frac{7}{30}$$

$$\left(8\frac{1}{3} + 5\frac{1}{2} \right) \cdot \left(3\frac{1}{5} - 2\frac{1}{10} \right) = 13\frac{5}{6} \cdot 1\frac{1}{10} = 15\frac{13}{60}$$

$$\left(3\frac{3}{10} + 5\frac{19}{20} \right) \cdot \left(\frac{3}{4} + \frac{7}{20} \right) = 9\frac{1}{4} \cdot 1\frac{1}{10} = 10\frac{7}{40}$$

$$\left(\frac{9}{2} \cdot \frac{8}{3} - \frac{3}{10} \right) : \frac{4}{5} = 11\frac{7}{10} : \frac{4}{5} = 14\frac{5}{8}$$

$$\left(\frac{3}{4} \cdot \frac{2}{9} + \frac{5}{8} \right) \cdot \frac{2}{5} = \frac{19}{24} \cdot \frac{2}{5} = \frac{19}{60}$$

$$\frac{9}{2} \cdot \left(\frac{8}{3} - \frac{3}{10} \right) : \frac{4}{5} = \frac{9}{2} \cdot 2\frac{11}{30} : \frac{4}{5} = 13\frac{5}{16}$$

$$\frac{3}{4} \cdot \left(\frac{2}{9} + \frac{5}{8} \cdot \frac{2}{5} \right) = \frac{3}{4} \cdot \frac{17}{36} = \frac{17}{48}$$

$$\frac{4}{9} : \frac{10}{27} - \left(\frac{11}{15} \cdot \frac{5}{12} + \frac{5}{6} \right) = 1\frac{1}{5} - 1\frac{5}{36} = \frac{11}{180}$$

$$6\frac{1}{2} - \frac{1}{2} : \left(\frac{2}{3} + 1\frac{1}{6} \right) = 6\frac{1}{2} - \frac{1}{2} : 1\frac{5}{6} = 6\frac{5}{22}$$

$$4 \frac{1}{2} : \left(\frac{7}{10} - \frac{2}{5} \right) + \frac{3}{8} = 4 \frac{1}{2} : \frac{3}{10} + \frac{3}{8} = 15 \frac{3}{8} \quad \frac{3}{4} + \left(2 - \frac{2}{5} \right) \cdot \frac{5}{6} = \frac{3}{4} + 1 \frac{3}{5} \cdot \frac{5}{6} = 2 \frac{1}{12}$$

$$5 \frac{1}{5} \cdot \left(3 \frac{1}{10} + 4 \frac{4}{15} + 1 \frac{29}{30} \right) = 5 \frac{1}{5} \cdot 9 \frac{1}{3} = 48 \frac{8}{15} \quad \left(8 \frac{1}{3} + 5 \frac{1}{2} \right) \cdot \left(3 \frac{1}{5} - 2 \frac{1}{10} \right) = 13 \frac{5}{6} \cdot 1 \frac{1}{10} = 15 \frac{13}{60}$$

$$\left(3 \frac{7}{18} - 1 \frac{1}{3} \right) \cdot \left(3 \frac{1}{4} - 1 \frac{3}{16} \right) = 2 \frac{1}{18} \cdot 2 \frac{1}{16} = 4 \frac{23}{96} \quad \left(6 \frac{1}{3} - 4 \frac{5}{9} \right) \cdot \left(\frac{3}{7} + 2 \frac{1}{21} \right) = 1 \frac{7}{9} \cdot 2 \frac{10}{21} = 4 \frac{76}{189}$$

$$\left(3 \frac{3}{10} + 5 \frac{19}{20} \right) \cdot \left(\frac{3}{4} + \frac{7}{20} \right) = 9 \frac{1}{4} \cdot 1 \frac{1}{10} = 10 \frac{7}{40} \quad \left(9 \frac{3}{16} - 8 \frac{3}{4} \right) \cdot \left(\frac{3}{8} + 4 \frac{5}{32} \right) = \frac{7}{16} \cdot 4 \frac{17}{32} = 1 \frac{503}{512}$$

$$\left(7 \frac{4}{15} - 4 \frac{3}{5} \right) \cdot \left(2 \frac{5}{6} + 5 \frac{1}{12} \right) = 2 \frac{2}{3} \cdot 7 \frac{11}{12} = 21 \frac{1}{9} \quad \frac{2}{5} \cdot \left(\frac{15}{8} + \frac{3}{4} : \frac{1}{2} \right) = \frac{2}{5} \cdot 3 \frac{3}{8} = 1 \frac{7}{20}$$

$$\left(\frac{2}{5} \cdot \frac{25}{8} + \frac{3}{4} \right) : \frac{3}{4} = 2 : \frac{3}{4} = 2 \frac{2}{3} \quad \frac{3}{4} + \left(2 - \frac{2}{5} \right) \cdot \frac{5}{6} = \frac{3}{4} + 1 \frac{3}{5} \cdot \frac{5}{6} = 2 \frac{1}{12}$$

$$\left(\frac{7}{9} + \frac{1}{3} \right) + \left(\frac{1}{2} + \frac{4}{13} \right) = \frac{10}{9} + \frac{24}{26} = 1 \frac{215}{234} \quad \left(\frac{8}{15} + \frac{1}{10} \right) + \left(\frac{3}{5} + \frac{3}{8} \right) = \frac{19}{30} + \frac{39}{40} = 1 \frac{73}{120}$$

$$\left(5 \frac{8}{15} + 3 \frac{1}{3} \right) + \left(7 \frac{1}{2} + \frac{1}{4} \right) = 8 \frac{13}{15} + 7 \frac{3}{4} = 16 \frac{37}{60} \quad \left(\frac{1}{4} + \frac{1}{3} \right) + \left(1 \frac{8}{9} + 4 \frac{2}{7} \right) = \frac{7}{12} + 5 \frac{74}{63} = 6 \frac{191}{252}$$

$$\left(\frac{3}{4} + 4 \frac{7}{10} \right) + \left(3 \frac{3}{8} + \frac{2}{5} \right) = 4 \frac{100}{40} + 3 \frac{31}{40} = 9 \frac{9}{40}$$

$$\left(\frac{3}{4} + 5 \frac{9}{10} \right) + \left(7 \frac{2}{3} - \frac{1}{8} \right) = 5 \frac{66}{40} + 7 \frac{13}{24} = 14 \frac{23}{120}$$

2. Berechne:

$$-\frac{3}{7} + \left(-\frac{1}{2} \right) = -\frac{3}{7} - \frac{1}{2} = -\frac{6}{14} - \frac{7}{14} = -\frac{13}{14}$$

$$\frac{1}{4} + \left(-\frac{1}{6} \right) = \frac{1}{4} - \frac{1}{6} = \frac{3}{12} - \frac{2}{12} = \frac{1}{12}$$

$$-\frac{3}{5} + \left(-\frac{7}{10} \right) = -\frac{3}{5} - \frac{7}{10} = -\frac{6}{10} - \frac{7}{10} = -1 \frac{3}{10}$$

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Berechne

$$\left(5 \frac{3}{5} + 6 \frac{1}{2} \right) - \left(15 \frac{1}{2} - 8 \frac{1}{4} \right) = 4 \frac{17}{20} \quad \left(23 \frac{1}{10} + 7 \frac{1}{8} \right) + 4 \frac{1}{2} - \left(4 \frac{1}{3} + \frac{1}{5} \right) = 30 \frac{23}{120}$$

$$3 \frac{8}{9} - \left(3 \frac{1}{2} - 2 \frac{1}{4} \right) = 2 \frac{23}{36} \quad 5 \frac{1}{3} - \left(\frac{50}{51} + \frac{5}{17} \right) = 4 \frac{1}{17} \quad 22 \frac{1}{5} - \left(15 \frac{1}{2} + 4 \frac{2}{7} \right) = 2 \frac{29}{70}$$

$$\left(\frac{23}{4} - \frac{5}{3} \right) + \left(\frac{15}{16} - \frac{3}{8} \right) = 4 \frac{31}{48} \quad \left(\frac{7}{12} - \frac{2}{5} \right) + \left(\frac{6}{5} - \frac{3}{4} \right) = \frac{19}{30} \quad \left(\frac{23}{24} - \frac{1}{8} \right) - \left(\frac{1}{2} - \frac{1}{4} \right) = \frac{7}{12}$$

$$\left(\frac{9}{10} - \frac{5}{6} \right) - \left(\frac{4}{5} - \frac{3}{4} \right) = \frac{1}{60} \quad \left(\frac{11}{12} - \frac{7}{9} \right) + \left(\frac{5}{6} - \frac{3}{4} \right) = \frac{2}{9} \quad \left(\frac{25}{27} - \frac{1}{2} \right) - \left(\frac{5}{9} - \frac{1}{6} \right) = \frac{1}{27}$$

$$\left(\frac{5}{3} - \frac{1}{2} \right) - \frac{1}{1} = \frac{1}{6} \quad \left(\frac{7}{8} - \frac{3}{20} \right) + \left(\frac{1}{2} - \frac{1}{4} \right) = \frac{39}{40} \quad \left(\frac{11}{15} - \frac{1}{3} \right) - \left(\frac{5}{6} - \frac{4}{5} \right) = \frac{11}{30}$$

$$\left(\frac{15}{5} + \frac{10}{2}\right) + \frac{36}{12} = 11$$

$$\frac{8}{13} + \left(\frac{2}{5} + \frac{1}{2}\right) = 1\frac{67}{130}$$

$$\frac{32}{8} + \left(\frac{11}{13} + \frac{6}{39}\right) = 5$$

$$\left(\frac{17}{1} + \frac{1}{17}\right) + \left(\frac{1}{2} + \frac{2}{1}\right) = 19\frac{19}{34}$$

$$\left(\frac{18}{3} + \frac{3}{18}\right) + \left(\frac{1}{6} + \frac{2}{3}\right) = 7$$

$$\left(\frac{2}{5} + \frac{7}{10}\right) + \left(\frac{1}{2} + \frac{4}{10}\right) = 2$$

$$\frac{\left(6\frac{4}{5} - 4\frac{1}{2}\right) \cdot \frac{3}{5}}{\left(2\frac{5}{6} + 1\frac{1}{4}\right) \cdot \frac{3}{5}} = \frac{138}{245}$$

$$\frac{\left(1\frac{22}{25} + 2\frac{4}{15}\right) \cdot \frac{7}{4}}{\left(2\frac{1}{4} + 3\frac{1}{5}\right)} = 1\frac{542}{1635}$$

$$\frac{5\frac{3}{4} - 2 : \frac{3}{4}}{5\frac{1}{8} : 4\frac{1}{3}} = 2\frac{224}{369}$$

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

$$\frac{\left(\frac{7}{10} \cdot \frac{5}{3}\right) : \frac{1}{2}}{2\frac{3}{5} : \left(\frac{3}{4} + \frac{4}{3}\right)} = 1\frac{407}{468}$$

$$\frac{2\frac{1}{5} \cdot \left(\frac{17}{3} - 2\frac{1}{2}\right)}{\left(1\frac{1}{5} - \frac{3}{4}\right) \cdot 3 + \frac{1}{4}} = 4\frac{17}{48}$$

$$\frac{3\frac{1}{8} \cdot \left(\frac{17}{5} - 2\frac{3}{5}\right)}{\left(\frac{4}{5} - \frac{3}{4}\right) \cdot 2 + \frac{1}{2}} = \frac{2\frac{1}{2}}{\frac{3}{5}} = 4\frac{1}{6}$$

$$\frac{\left(\frac{7}{5} + 2\frac{1}{6} \cdot \frac{3}{5}\right) : \frac{7}{3}}{\left(3 : 1\frac{4}{5} - \frac{2}{9}\right) \cdot \frac{6}{5}} = \frac{1\frac{11}{70}}{1\frac{11}{15}} = \frac{243}{364}$$

$$\frac{4 : \left(2 : 3\frac{1}{4} - \frac{4}{15}\right)}{\left(2 \cdot 3\frac{1}{4} - 2\frac{1}{2} \cdot \frac{7}{5}\right)} = \frac{11\frac{8}{17}}{3} = 3\frac{14}{17}$$

$$\frac{5 \cdot 16 - 7\frac{1}{8} : 19 + 30 : 7\frac{1}{5}}{\left(5\frac{2}{9} - \frac{1}{9} \cdot 38\right) : 24} = \frac{13\frac{19}{24}}{\frac{1}{24}} = 331$$

$$\frac{\left(\frac{5}{6} + \frac{5}{3} \cdot \frac{5}{4}\right) \cdot 4\frac{1}{5}}{\left(6\frac{2}{7} - \frac{5}{7} \cdot \frac{3}{5}\right) : 2} = \frac{12\frac{1}{4}}{2\frac{13}{14}} = 4\frac{15}{82}$$

$$\frac{4\frac{4}{5} : \left(1 + \frac{2}{5} \cdot 2\frac{3}{4}\right)}{\left(\frac{3}{8} \cdot 4 - 3 \cdot \frac{3}{8}\right) \cdot \frac{4}{3}} = 4\frac{4}{7}$$