

Verbindung der 4 Grundrechnungsarten

Lösungsblatt

Löse die folgenden Bruchrechnungen und beachte dabei die Vorrangregeln (Klammer vor Punkt vor Strich!).

$\begin{aligned} & \left(4\frac{5}{6} - 1\frac{2}{3}\right) \cdot 2 - \left(1\frac{1}{12} - \frac{1}{3}\right) = \\ & = \left(\frac{29}{6} - \frac{5}{3}\right) \cdot 2 - \left(\frac{13}{12} - \frac{1}{3}\right) = \\ & = \left(\frac{29}{6} - \frac{10}{6}\right) \cdot 2 - \left(\frac{13}{12} - \frac{4}{12}\right) = \\ & = \frac{19}{6} \cdot 2 - \frac{9}{12} = \\ & = \frac{38}{6} - \frac{9}{12} = \\ & = \frac{76}{12} - \frac{9}{12} = \\ & = \frac{67}{12} = 5\frac{7}{12} \end{aligned}$	<table border="1"> <tbody> <tr><td>$2\frac{2}{3}$</td></tr> <tr><td>$5\frac{7}{12}$</td></tr> <tr><td>$4\frac{1}{4}$</td></tr> </tbody> </table>	$2\frac{2}{3}$	$5\frac{7}{12}$	$4\frac{1}{4}$	$\begin{aligned} & \left(2\frac{2}{5} \cdot 3\frac{3}{4}\right) : \left(3\frac{1}{2} - \frac{7}{8}\right) = \\ & = \left(\frac{12}{5} \cdot \frac{15}{4}\right) : \left(\frac{7}{2} - \frac{7}{8}\right) = \\ & = \left(\frac{3}{5} \cdot \frac{15}{1}\right) : \left(\frac{28}{8} - \frac{7}{8}\right) = \\ & = \left(\frac{3}{1} \cdot \frac{3}{1}\right) : \left(\frac{21}{8}\right) = \\ & = \frac{9}{1} : \frac{21}{8} = \\ & = \frac{9}{1} \cdot \frac{8}{21} = \\ & = \frac{3}{1} = \frac{8}{7} = \frac{24}{7} = 3\frac{3}{7} \end{aligned}$	<table border="1"> <tbody> <tr><td>$3\frac{3}{7}$</td></tr> <tr><td>$2\frac{3}{4}$</td></tr> <tr><td>$1\frac{1}{2}$</td></tr> </tbody> </table>	$3\frac{3}{7}$	$2\frac{3}{4}$	$1\frac{1}{2}$
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$\begin{aligned} & \left(4\frac{1}{5} - 1\frac{2}{7}\right) \cdot \frac{5}{6} + \left(3\frac{1}{2} + 1\frac{2}{9}\right) : \frac{5}{18} - \frac{3}{7} = \\ & = \left(\frac{21}{5} - \frac{9}{7}\right) \cdot \frac{5}{6} + \left(\frac{7}{2} + \frac{11}{9}\right) : \frac{5}{18} - \frac{3}{7} = \\ & = \left(\frac{147}{35} - \frac{45}{35}\right) \cdot \frac{5}{6} + \left(\frac{63}{18} + \frac{22}{18}\right) : \frac{5}{18} - \frac{3}{7} = \\ & = \left(\frac{102}{35}\right) \cdot \frac{5}{6} + \left(\frac{85}{18}\right) : \frac{5}{18} - \frac{3}{7} = \\ & = \frac{102 \cdot 5}{35 \cdot 6} + \frac{85 \cdot 18}{18 \cdot 5} - \frac{3}{7} = \\ & = \frac{17 \cdot 5}{35 \cdot 1} + \frac{17 \cdot 18}{18 \cdot 1} - \frac{3}{7} = \\ & = \frac{17 \cdot 1}{7 \cdot 1} + \frac{17 \cdot 1}{1 \cdot 1} - \frac{3}{7} = \\ & = \frac{17}{7} + \frac{17}{1} - \frac{3}{7} = 17 + \frac{17}{7} - \frac{3}{7} = \\ & = 17 + \frac{14}{7} = 19 \end{aligned}$	<table border="1"> <tbody> <tr><td>19</td></tr> <tr><td>17</td></tr> <tr><td>9</td></tr> </tbody> </table>	19	17	9	$\begin{aligned} & 3 \cdot \left[\left(2\frac{1}{4} - 1\frac{2}{3}\right)\right] : \left[5 \cdot \frac{1}{2} \cdot \frac{2}{3} + \frac{3}{4} \cdot \frac{4}{5}\right] = \\ & = 3 \cdot \left[\left(\frac{9}{4} - \frac{5}{3}\right)\right] : \left[5 \cdot \frac{1}{2} \cdot \frac{2}{3} + \frac{3}{4} \cdot \frac{4}{5}\right] = \\ & = 3 \cdot \left[\left(\frac{27}{12} - \frac{20}{12}\right)\right] : \left[5 \cdot \frac{1}{1} \cdot \frac{1}{3} + \frac{3}{1} \cdot \frac{1}{5}\right] = \\ & = 3 \cdot \left[\left(\frac{7}{12}\right)\right] : \left[5 \cdot \frac{1}{3} + \frac{3}{5}\right] = \\ & = 3 \cdot \left[\left(\frac{7}{12}\right)\right] : \left[\frac{5}{3} + \frac{3}{5}\right] = \\ & = 1 \cdot \left[\left(\frac{7}{4}\right)\right] : \left[\frac{25}{15} + \frac{9}{15}\right] = \\ & = \frac{7}{4} : \frac{34}{15} = \\ & = \frac{7}{4} \cdot \frac{15}{34} = \frac{105}{136} \end{aligned}$	<table border="1"> <tbody> <tr><td>$\frac{42}{73}$</td></tr> <tr><td>$\frac{51}{52}$</td></tr> <tr><td>$\frac{105}{136}$</td></tr> </tbody> </table>	$\frac{42}{73}$	$\frac{51}{52}$	$\frac{105}{136}$
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