

Mathematik-Intensivierung * Jahrgangsstufe 6 * Division von Brüchen

Berechne

$$1. \left(2\frac{5}{8} : 4\frac{1}{12}\right) : \frac{3}{4} =$$

$$2. 2\frac{3}{4} : \frac{5}{6} + \frac{4}{5} : \frac{2}{3} =$$



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

$$4. 2\frac{4}{5} : 10\frac{1}{2} - 2\frac{2}{7} : 1\frac{1}{35} =$$

$$5. \frac{3\frac{5}{7}}{7\frac{4}{5}} =$$

$$6. \frac{15\frac{3}{8}}{4\frac{5}{9}} =$$

$$7. \frac{\left(\frac{2}{3}\right)^2 - \left(1\frac{5}{6}\right)^2}{\left(1\frac{1}{6}\right)^2} =$$

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



$$9. 7\frac{1}{5} : 2\frac{4}{25} - \frac{4}{5} : 1\frac{1}{2} =$$

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

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$$1. \quad \left(2\frac{5}{8} : 4\frac{1}{12}\right) : \frac{3}{4} = \left(\frac{21}{8} : \frac{49}{12}\right) \cdot \frac{4}{3} = \left(\frac{21}{8} \cdot \frac{12}{49}\right) \cdot \frac{4}{3} = \frac{3 \cdot \cancel{7} \cdot \cancel{2} \cdot \cancel{4} \cdot \cancel{4}}{\cancel{2} \cdot \cancel{4} \cdot \cancel{7} \cdot 7 \cdot \cancel{3}} = \frac{6}{7}$$

$$2. \quad 2\frac{3}{4} : \frac{5}{6} + \frac{4}{5} : \frac{2}{3} = \frac{11}{4} \cdot \frac{6}{5} + \frac{4}{5} \cdot \frac{3}{2} = \frac{11 \cdot 3 \cdot \cancel{2}}{2 \cdot \cancel{2} \cdot 5} + \frac{4 \cdot 3}{5 \cdot 2} = \frac{33}{10} + \frac{12}{10} = \frac{45}{10} = \frac{9}{2} = 4\frac{1}{2}$$

$$3. \quad \left(8\frac{2}{5} : 8\frac{3}{4}\right) : \left(2\frac{2}{7} : 7\right) = \left(\frac{42}{5} : \frac{35}{4}\right) : \left(\frac{16}{7} : \frac{1}{7}\right) = \left(\frac{42}{5} \cdot \frac{4}{35}\right) : \left(\frac{16}{7} \cdot \frac{1}{7}\right) = \frac{\cancel{7} \cdot 6 \cdot 4}{5 \cdot 5 \cdot \cancel{7}} \cdot \frac{49}{16} = \frac{\cancel{7} \cdot 3 \cdot \cancel{4} \cdot 49}{5 \cdot 5 \cdot 2 \cdot \cancel{2} \cdot \cancel{4}} = \frac{147}{50} = 2\frac{47}{50}$$

$$4. \quad 2\frac{4}{5} : 10\frac{1}{2} - 2\frac{2}{7} : 1\frac{1}{35} = \frac{14}{5} : \frac{21}{2} - \frac{16}{7} : \frac{36}{35} = \frac{14 \cdot 2}{5 \cdot 21} - \frac{16 \cdot 35}{7 \cdot 36} = \frac{14 \cdot 2}{5 \cdot 21} - \frac{16 \cdot 35}{7 \cdot 36} = \frac{\cancel{7} \cdot 2 \cdot 2}{5 \cdot 3 \cdot \cancel{7}} - \frac{4 \cdot \cancel{4} \cdot 5 \cdot \cancel{7}}{\cancel{7} \cdot \cancel{4} \cdot 9} = \frac{2 \cdot 2 \cdot 3}{15 \cdot 3} - \frac{20 \cdot 5}{9 \cdot 5} = \frac{12}{45} - \frac{100}{45} = -\frac{88}{45} = -1\frac{43}{45}$$

$$5. \quad \frac{3\frac{5}{7}}{7\frac{4}{5}} = \frac{26}{7} : \frac{39}{5} = \frac{26}{7} \cdot \frac{5}{39} = \frac{2 \cdot \cancel{13} \cdot 5}{7 \cdot 3 \cdot \cancel{13}} = \frac{10}{21}$$

$$6. \quad \frac{15\frac{3}{8}}{4\frac{5}{9}} = \frac{123}{8} : \frac{41}{9} = \frac{123}{8} \cdot \frac{9}{41} = \frac{3 \cdot 41 \cdot 9}{8 \cdot 41} = \frac{27}{8} = 3\frac{3}{8}$$

$$7. \quad \frac{\left(\frac{2}{3}\right)^2 - \left(1\frac{5}{6}\right)^2}{\left(1\frac{1}{6}\right)^2} = \frac{\frac{4}{9} - \frac{11 \cdot 11}{6 \cdot 6}}{\frac{7 \cdot 7}{6 \cdot 6}} = \frac{\frac{4 \cdot 4}{9 \cdot 4} - \frac{121}{36}}{\frac{49}{36}} = \frac{-\frac{121-16}{36}}{\frac{49}{36}} = -\frac{105}{36} : \frac{49}{36} = -\frac{105 \cdot 36}{36 \cdot 49} = -\frac{105 \cdot \cancel{36}}{\cancel{36} \cdot 49} = -\frac{5 \cdot 3 \cdot \cancel{7}}{7 \cdot \cancel{7}} = -\frac{15}{7} = -2\frac{1}{7}$$

$$8. \quad \frac{2\frac{3}{4} - 6\frac{7}{8}}{2\frac{3}{4} : 1\frac{3}{5}} = \frac{\frac{3}{4} - 4\frac{7}{8}}{\frac{11}{4} : \frac{8}{5}} = \frac{\frac{6}{8} - \frac{39}{8}}{\frac{11 \cdot 5}{4 \cdot 8}} = \frac{-\frac{33}{8}}{\frac{55}{32}} = -\frac{3 \cdot 11}{8} : \frac{5 \cdot 11}{4 \cdot 8} = -\frac{3 \cdot \cancel{11} \cdot 4 \cdot \cancel{8}}{\cancel{8} \cdot 5 \cdot \cancel{11}} = -\frac{12}{5} = -2\frac{2}{5}$$

$$9. \quad 7\frac{1}{5} : 2\frac{4}{25} - \frac{4}{5} : 1\frac{1}{2} = \frac{36}{5} : \frac{54}{25} - \frac{4}{5} : \frac{3}{2} = \frac{36}{5} \cdot \frac{5}{54} - \frac{4 \cdot 2}{5 \cdot 3} = \frac{2 \cdot \cancel{18} \cdot 25}{5 \cdot 3 \cdot \cancel{18}} - \frac{8}{15} = \frac{50}{15} - \frac{8}{15} = \frac{42}{15} = \frac{14}{5} = 2\frac{4}{5}$$

$$10. \quad 1 - \frac{2}{3} \cdot \left(\frac{4}{5} \cdot 6\frac{7}{8} - 9\right) = 1 - \frac{2}{3} \cdot \left(\frac{4}{5} \cdot \frac{55}{8} - 9\right) = 1 - \frac{2}{3} \cdot \left(\frac{\cancel{4} \cdot \cancel{5} \cdot 11}{\cancel{5} \cdot \cancel{4} \cdot 2} - 9\right) = 1 - \frac{2}{3} \cdot \left(\frac{11}{2} - \frac{18}{2}\right) = 1 - \frac{2}{3} \cdot \left(-\frac{7}{2}\right) = 1 + \frac{2}{3} \cdot \frac{7}{2} = 1 + \frac{7}{3} = \frac{3}{3} + \frac{7}{3} = \frac{10}{3} = 3\frac{1}{3}$$

