

Name:

Datum:

Rechnen mit Brüchen und Gemischten Zahlen - Terme - Klapptest 1 - Lösung



$$1. \quad \frac{2}{3} \cdot \left(\frac{1}{6} - \frac{5}{12} \right) = \frac{2}{3} \cdot \left(\frac{2}{12} - \frac{5}{12} \right) = \frac{2}{3} \cdot \left(-\frac{3}{12} \right) = \frac{2 \cdot (-3)}{3 \cdot 12} = \frac{1 \cdot (-1)}{1 \cdot 6} = -\frac{1}{6}$$

$$2. \quad \left(\frac{2}{3} - \frac{1}{8} \right) : \left(-\frac{1}{4} \right) = \left(\frac{16}{24} - \frac{3}{24} \right) \cdot \left(-\frac{4}{1} \right) = \left(\frac{13}{24} \right) \cdot \left(-\frac{4}{1} \right) = \frac{13 \cdot (-4)}{24 \cdot 1} = \frac{13 \cdot (-1)}{6 \cdot 1} = -\frac{13}{6} = -2\frac{1}{6}$$

$$3. \quad -\frac{2}{5} \cdot \left(\frac{5}{6} - 1\frac{1}{2} \right) = -\frac{2}{5} \cdot \left(\frac{5}{6} - \frac{3}{2} \right) = -\frac{2}{5} \cdot \left(\frac{5}{6} - \frac{9}{6} \right) = -\frac{2}{5} \cdot \left(-\frac{4}{6} \right) = +\frac{2 \cdot 4}{5 \cdot 6} = \frac{1 \cdot 4}{5 \cdot 3} = \frac{4}{15}$$

$$4. \quad 6 : \left(\frac{1}{3} - \frac{1}{6} \right) = 6 : \left(\frac{2}{6} - \frac{1}{6} \right) = 6 : \left(\frac{1}{6} \right) = 6 \cdot \left(\frac{6}{1} \right) = \frac{36}{1} = 36$$

$$5. \quad \left(\frac{1}{12} - \frac{2}{3} + \frac{1}{2} \right) \cdot \left(-\frac{9}{11} \right) = \left(\frac{1}{12} - \frac{8}{12} + \frac{6}{12} \right) \cdot \left(-\frac{9}{11} \right) = \left(\frac{1-8+6}{12} \right) \cdot \left(-\frac{9}{11} \right) = \left(\frac{-1}{12} \right) \cdot \left(-\frac{9}{11} \right) = \left(-\frac{1}{12} \right) \cdot \left(-\frac{9}{11} \right) = +\frac{1 \cdot 9}{12 \cdot 11} = \frac{1 \cdot 3}{4 \cdot 11} = \frac{3}{44}$$

$$6. \quad \frac{5}{6} - 1\frac{5}{18} - \frac{2}{9} = \frac{15}{18} - \frac{23}{18} - \frac{4}{18} = \frac{15-23-4}{18} = \frac{-12}{18} = -\frac{2}{3}$$

$$7. \quad -\frac{22}{21} : \left(\frac{5}{6} - \frac{4}{7} \right) = -\frac{22}{21} : \left(\frac{35}{42} - \frac{24}{42} \right) = -\frac{22}{21} : \left(\frac{11}{42} \right) = -\frac{22}{21} \cdot \frac{42}{11} = \frac{22 \cdot 42}{21 \cdot 11} = \frac{2 \cdot 2}{1 \cdot 1} = \frac{4}{1} = 4$$

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

$$9. \quad \left(\frac{1}{6} - \frac{4}{9} \right) \cdot \left(-\frac{2}{15} \right) = \left(\frac{3}{18} - \frac{8}{18} \right) \cdot \left(-\frac{2}{15} \right) = \left(-\frac{5}{18} \right) \cdot \left(-\frac{2}{15} \right) = +\frac{5 \cdot 2}{18 \cdot 15} = \frac{1 \cdot 1}{9 \cdot 3} = \frac{1}{27}$$

$$10. \quad \left(\frac{5}{6} - 1\frac{1}{4} \right) + \left(6 - 4\frac{1}{3} \right) = \left(\frac{5}{6} - \frac{5}{4} \right) + \left(6 - \frac{13}{3} \right) = \left(\frac{10}{12} - \frac{15}{12} \right) + \left(\frac{18}{3} - \frac{13}{3} \right) = \left(-\frac{5}{12} \right) + \left(\frac{5}{3} \right) = \left(-\frac{5}{12} \right) + \left(\frac{20}{12} \right) = \frac{-5+20}{12} = \frac{15}{12} = 1\frac{3}{12} = 1\frac{1}{4}$$

$$11. \quad \frac{2}{7} : \left(\frac{5}{21} - 2\frac{1}{3} \right) = \frac{2}{7} : \left(\frac{5}{21} - \frac{7}{3} \right) = \frac{2}{7} : \left(\frac{5}{21} - \frac{49}{21} \right) = \frac{2}{7} : \left(\frac{5-49}{21} \right) = \frac{2}{7} : \left(\frac{-44}{21} \right) = \frac{2}{7} \cdot \left(\frac{21}{-44} \right) = \frac{2 \cdot 21}{7 \cdot (-44)} = \frac{1 \cdot 3}{1 \cdot (-22)} = \frac{3}{-22} = -\frac{3}{22}$$

$$12. \quad -\frac{1}{9} : \left(\frac{2}{9} \cdot \frac{5}{9} \right) = -\frac{1}{9} : \left(\frac{10}{81} \right) = -\frac{1}{9} \cdot \frac{81}{10} = -\frac{1 \cdot 81}{9 \cdot 10} = -\frac{1 \cdot 9}{1 \cdot 10} = -\frac{9}{10}$$

$$13. \quad -4 : \left(\frac{1}{8} - \frac{1}{2} \right) = -4 : \left(\frac{1}{8} - \frac{4}{8} \right) = -4 : \left(-\frac{3}{8} \right) = +4 \cdot \frac{8}{3} = \frac{32}{3} = 10\frac{2}{3}$$

$$14. \quad \frac{1}{2} - \frac{1}{3} + \frac{1}{4} = \frac{6}{12} - \frac{4}{12} + \frac{3}{12} = \frac{6-4+3}{12} = \frac{5}{12}$$

$$15. \quad -\frac{3}{10} : \left(\frac{9}{5} \cdot \frac{1}{4} \right) = -\frac{3}{10} : \left(\frac{9}{20} \right) = -\frac{3}{10} \cdot \frac{20}{9} = -\frac{3 \cdot 20}{10 \cdot 9} = -\frac{1 \cdot 2}{1 \cdot 3} = -\frac{2}{3}$$

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