

Aufgaben zum Multiplizieren von Bruchzahlen

1.0 Berechnen Sie.

$$1.1 \quad \frac{13}{18} \cdot \frac{45}{52}$$

$$1.2 \quad \frac{14}{25} \cdot \left(-\frac{10}{42}\right)$$

$$1.3 \quad \frac{14}{15} \cdot \frac{24}{35}$$

$$1.4 \quad 2\frac{2}{5} \cdot 3\frac{2}{3}$$

$$1.5 \quad \left(-3\frac{1}{5}\right) \cdot 7\frac{1}{2}$$

$$1.6 \quad \left(-4\frac{1}{6}\right) \cdot \left(-2\frac{2}{5}\right)$$

2.0 Berechnen Sie.

$$2.1 \quad \frac{3}{7} \cdot \left(\frac{1}{4} \cdot 2\frac{1}{3}\right)$$

$$2.2 \quad 3 \cdot 2\frac{3}{4} \cdot \left(-\frac{2}{3}\right)$$

$$2.3 \quad 2\frac{1}{2} \cdot 2\frac{2}{5} \cdot \frac{1}{6}$$

$$2.4 \quad \left(\frac{2}{9} \cdot \frac{7}{11}\right) \cdot 2\frac{1}{4}$$

$$2.5 \quad \left(\frac{2}{5} \cdot 2\frac{3}{4}\right) \cdot \left(1\frac{2}{3} \cdot \frac{8}{11}\right)$$

$$2.6 \quad \left(\frac{5}{17} \cdot \left(-1\frac{3}{7}\right)\right) \cdot \left(1\frac{2}{5} \cdot (-34)\right)$$

$$2.7 \quad \left(3\frac{1}{5} \cdot \frac{11}{13}\right) \cdot \left(\frac{5}{2} \cdot \frac{3}{11}\right) \cdot 6\frac{1}{2}$$

3.0 Bestimmen Sie, für welche $x \in \mathbb{N}$ gilt.

$$3.1 \quad \frac{2}{3} \cdot \frac{x}{5} < 1$$

$$3.2 \quad \frac{x}{3} \cdot \frac{1}{2} \leq \frac{4}{3}$$

$$3.3 \quad \frac{5}{x} \cdot \frac{7}{2} < 4$$

$$3.4 \quad -\frac{3}{4} \cdot \frac{x}{2} < -1\frac{2}{3}$$

Lösungen

$$1.1 \quad \frac{5}{8} \quad 1.2 \quad -\frac{2}{15} \quad 1.3 \quad \frac{16}{25} \quad 1.4 \quad \frac{44}{5} \quad 1.5 \quad -24 \quad 1.6 \quad 10$$

$$2.1 \quad \frac{3}{7} \cdot \frac{1}{4} \cdot \frac{7}{3} = \left(\frac{3}{7} \cdot \frac{7}{3} \right) \cdot \frac{1}{4} = \frac{1}{4} \quad 2.2 \quad 3 \cdot \frac{11}{4} \cdot \frac{2}{3} = \left(3 \cdot \left(-\frac{2}{3} \right) \right) \cdot \frac{11}{4} = -2 \cdot \frac{11}{4} = -\frac{11}{2} = -5\frac{1}{2}$$

$$2.3 \quad \left(\frac{5}{2} \cdot \frac{12}{5} \right) \cdot \frac{1}{6} = 6 \cdot \frac{1}{6} = 1 \quad 2.4 \quad \left(\frac{2}{9} \cdot \frac{7}{11} \right) \cdot \frac{9}{4} = \left(\frac{2}{9} \cdot \frac{9}{4} \right) \cdot \frac{7}{11} = \frac{1}{2} \cdot \frac{7}{11} = \frac{7}{22}$$

$$2.5 \quad \left(\frac{2}{5} \cdot \frac{11}{4} \right) \cdot \left(\frac{5}{3} \cdot \frac{8}{11} \right) = \left(\frac{2}{5} \cdot \frac{5}{3} \right) \cdot \left(\frac{11}{4} \cdot \frac{8}{11} \right) = \frac{2}{3} \cdot 2 = \frac{4}{3}$$

$$2.6 \quad \left(\frac{5}{17} \cdot \left(-\frac{10}{7} \right) \right) \cdot \left(\frac{7}{5} \cdot (-34) \right) = \left(\frac{5}{17} \cdot (-34) \right) \cdot \left(\left(-\frac{10}{7} \right) \cdot \frac{7}{5} \right) = -10 \cdot (-2) = 20$$

$$2.7 \quad \left(\frac{16}{5} \cdot \frac{11}{13} \right) \cdot \left(\frac{5}{2} \cdot \frac{3}{11} \right) \cdot \frac{13}{2} = \left(\frac{16}{5} \cdot \frac{5}{2} \right) \cdot \left(\frac{11}{13} \cdot \frac{3}{11} \right) \cdot \frac{13}{2} = 8 \cdot \left(\frac{3}{13} \cdot \frac{13}{2} \right) = 8 \cdot \frac{3}{2} = 12$$

$$3.1 \quad \frac{2x}{15} < \frac{15}{15} \Rightarrow x \in \{0, 1, 2, 3, 4, 5, 6, 7\}$$

$$3.2 \quad \frac{x}{6} \leq \frac{4}{3} \Rightarrow \frac{x}{6} \leq \frac{8}{6} \Rightarrow x \in \{0, 1, 2, 3, 4, 5, 6, 7, 8\}$$

$$3.3 \quad \frac{35}{2x} < 4 \Rightarrow x \in \{5, 6, \dots\}$$

$$3.4 \quad -\frac{3x}{8} < -\frac{5}{3} \Rightarrow -\frac{9x}{24} < -\frac{40}{24} \Rightarrow x \in \{5, 6, 7, \dots\}$$