

GCSE Maths: Fraction arithmetic with confidence (Higher): answers

GCSE Maths - Fractions - Higher - Lesson 3.1

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch03-fractions/higher/fraction-arithmetic-with-confidence/

Exercise 3A Fraction arithmetic Non-calculator

1 Work out. Give each answer as a mixed number or fraction in its simplest form.

(a) $3\frac{1}{5} - 1\frac{3}{4}$

Answer: $1\frac{9}{20}$

(b) $2\frac{2}{3} + 4\frac{5}{6}$

Answer: $7\frac{1}{2}$

(c) $5\frac{1}{8} - 2\frac{3}{4}$

Answer: $2\frac{3}{8}$

(d) $6\frac{2}{9} - 3\frac{5}{6}$

Answer: $2\frac{7}{18}$

2 Work out.

(a) $2\frac{1}{4} \times 1\frac{5}{9}$

Answer: $3\frac{1}{2}$

(b) $3\frac{3}{5} \div 2\frac{2}{5}$

Answer: $1\frac{1}{2}$

(c) $4\frac{1}{2} \times 2\frac{2}{3}$

Answer: 12

(d) $1\frac{7}{8} \div 3\frac{3}{4}$

Answer: $\frac{1}{2}$

3 Work out. Give each answer in its simplest form.

(a) $\frac{2}{3} + \frac{1}{4} \times \frac{2}{5}$

Answer: $\frac{23}{30}$

(b) $(\frac{2}{3} + \frac{1}{4}) \div (\frac{5}{6} - \frac{1}{2})$

Answer: $2\frac{3}{4}$

(c) $\frac{3}{4} - \frac{2}{5} \times \frac{5}{6}$

Answer: $\frac{5}{12}$

(d) $(1\frac{1}{2} - \frac{2}{3})^2$

Answer: $\frac{25}{36}$

(e) $\frac{1}{1} \div (\frac{1}{2} + \frac{1}{3})$

Answer: $1\frac{1}{5}$

(f) $\frac{3}{4} \div \frac{1}{2} - \frac{2}{3} \div \frac{4}{9}$

Answer: 0

4 Work out.

(a) $-\frac{3}{4} + \frac{1}{2}$

Answer: $-\frac{1}{4}$

(b) $\frac{1}{3} - \frac{5}{6}$

Answer: $-\frac{1}{2}$

(c) $-\frac{2}{3} \times \frac{9}{10}$

Answer: $-\frac{3}{5}$

(d) $-\frac{5}{8} \div -\frac{15}{16}$

Answer: $\frac{2}{3}$

5 The sides of a triangle are $2\frac{1}{3}$ cm, $1\frac{3}{4}$ cm and $3\frac{5}{6}$ cm. Work out its perimeter.

Answer: $7\frac{11}{12}$ cm

6 A rectangle is $2\frac{1}{2}$ m by $1\frac{3}{5}$ m. Work out (a) its area, (b) its perimeter.

(a) area

Answer: 4 m^2

(b) perimeter

Answer: $8\frac{1}{5}$ m

7 Which is bigger: $\frac{3}{4}$ of $\frac{2}{3}$, or $\frac{2}{3}$ of $\frac{3}{4}$? Explain.

Answer: They are equal. Multiplication can be done in either order: both are $6/12 = 1/2$.

8 Show that $\frac{3}{7} + \frac{2}{5} = \frac{29}{35}$.

Answer: $\frac{15}{35} + \frac{14}{35} = \frac{29}{35}$

9 A tank holds $12\frac{1}{2}$ litres. A jug holds $\frac{3}{4}$ litre. How many full jugs can be filled from the tank, and how much water is left over?

Answer: $12\frac{1}{2} \div \frac{3}{4} = \frac{50}{3} = 16\frac{2}{3}$, so 16 full jugs, leaving $\frac{2}{3}$ of a jug = $\frac{1}{2}$ litre.

10 **Challenge.** Find two different unit fractions $\frac{1}{a}$ and $\frac{1}{b}$ that add up to $\frac{5}{12}$. (There are two answers.)

Answer: $\frac{1}{4} + \frac{1}{6}$ and $\frac{1}{3} + \frac{1}{12}$