

Exercise walk-through

Fractions, decimals and percentages ■ E1.4

eXercise

You must be able to

- convert between fractions, decimals and percentages
- add, subtract, multiply and divide fractions
- write a recurring decimal as a fraction

Method — Working with fractions

- **Convert:** $\frac{3}{8} = 0.375$; $0.07 = 7\%$; $34\% = \frac{34}{100} = 0.34$.
- **Divide fractions:** multiply by the reciprocal — $\frac{2}{3} \div \frac{4}{5} = \frac{2}{3} \times \frac{5}{4} = \frac{10}{12} = \frac{5}{6}$.
- **Recurring $\rightarrow$ fraction (Extended):** for $0.1\dot{7}$, $100x = 17.7\dots$, $10x = 1.7\dots \rightarrow 90x = 16 \rightarrow x = \frac{16}{90} = \frac{8}{45}$.

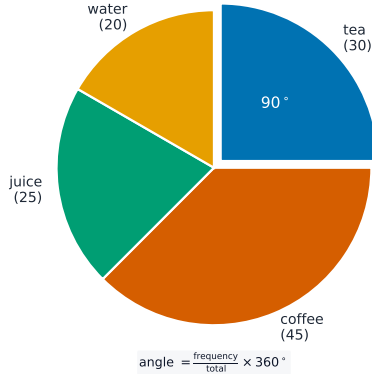
Answer shapes: **M1** a correct method, **A1** the correct answer.

Method — Working with fractions



Shops use percentages for discounts and tax

Method — Working with fractions



A pie chart shows fractions and percentages of a whole

Practice 2.1 ■ 2 marks

Work out $\frac{3}{4} \times \frac{2}{9}$, giving your answer in its simplest form.

Solution 2.1

Method: Working with fractions

Worked steps

$$\frac{3}{4} \times \frac{2}{9} = \frac{6}{36} = \frac{1}{6} \quad \text{M1 A1 for } \frac{6}{36}; \text{ for } \frac{1}{6}.$$

Practice 2.2 ■ 1 mark

Write $\frac{5}{8}$ as a decimal.

Solution 2.2

Worked steps

$$5 \div 8 = 0.625 \text{ (B1)}.$$

Practice 2.3 ■ 2 marks

Work out $\frac{5}{6} - \frac{1}{4}$, giving your answer in its simplest form.

Solution 2.3

Worked steps

common denominator 12: $\frac{10}{12} - \frac{3}{12} = \frac{7}{12}$ **M1** **A1** *for a common denominator; for $\frac{7}{12}$.*

Exam-style 3.1 ■ 3 marks

Work out $2\frac{1}{3} \div \frac{7}{9}$, giving your answer as a mixed number.

Solution 3.1

Worked steps

$$2\frac{1}{3} = \frac{7}{3}; \frac{7}{3} \div \frac{7}{9} = \frac{7}{3} \times \frac{9}{7} = \frac{63}{21} = 3$$

M1 M1 A1 for $\frac{7}{3}$; for $\times \frac{9}{7}$; for 3.

Exam-style 3.2 ■ 3 marks

A rope of length $\frac{7}{8}$ m is cut into pieces each $\frac{7}{40}$ m long. Work out how many pieces are cut, showing your working as a division of fractions.

Solution 3.2

Method: Working with fractions

Worked steps

$\frac{7}{8} \div \frac{7}{40} = \frac{7}{8} \times \frac{40}{7}$ **M1** *for inverting the second fraction and multiplying*; $= \frac{280}{56}$ **M1**; $= 5$ pieces **A1**.