

# E1.4 Fractions, decimals and percentages

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Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

**Total: 11 marks**

**KEY WORDS** percentage • simplest form • mixed number  
• recurring decimal • fraction

## Objective

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Build the skills to answer Extended exam questions on **fractions, decimals and percentages**,  
and **recurring decimals** – converting between them, calculating with fractions,  
(Extended).

**You must be able to:**

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

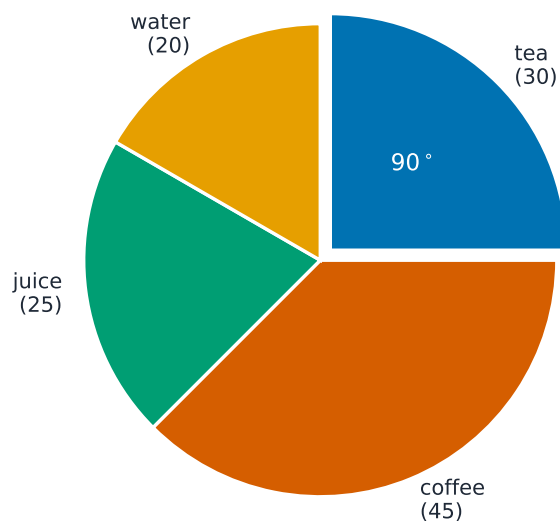
## 1 Key knowledge and worked examples

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### ■ Working with fractions



*A percentage means “out of 100”*



*A pie chart shows fractions and percentages of a whole*

- **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  $0.\dot{1}7$ ,  $100x = 17.7\ldots$ ,  $10x = 1.7\ldots \rightarrow 90x = 16 \rightarrow x = \frac{16}{90} = \frac{8}{45}$ .

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

## 2 Practice

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

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**2.2** Write  $\frac{5}{8}$  as a decimal. [1]

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**2.3** Work out  $\frac{5}{6} - \frac{1}{4}$ , giving your answer in its simplest form. [2]

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### 3 Exam-style questions

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

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**3.2** 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. [3]

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## Solutions

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Marking: **M1** a correct method, **A1** the correct answer.

Each answer shows the steps, then the **result**.

### 2.1

- multiply numerators and denominators

$$\frac{3}{4} \times \frac{2}{9} = \frac{6}{36} = \frac{\mathbf{1}}{\mathbf{6}}$$

### 2.2

- $5 \div 8 = \mathbf{0.625}$

### 2.3

- common denominator 12

$$\frac{10}{12} - \frac{3}{12} = \frac{\mathbf{7}}{\mathbf{12}}$$

### 3.1

- $2\frac{1}{3} = \frac{7}{3}$
- divide by multiplying by the reciprocal

$$\frac{7}{3} \times \frac{9}{7} = \frac{63}{21} = \mathbf{3}$$

### 3.2

- invert the second fraction and multiply

$$\frac{7}{8} \times \frac{40}{7} = \frac{280}{56} = \mathbf{5}$$

- 5 pieces**