MATHEMATICS · GRADES 4-6

# Dividing fractions

### Difficulty level: Intermediate

### Mathematics: Grades 4-6

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## *Overview of the concept*

This is how you work out how many servings are in a recipe or how to split a pizza into equal pieces. A recipe that makes four servings can be split into halves or quarters, and dividing fractions tells you how many of those smaller servings you get. It is also how you scale a recipe down when you are cooking for fewer people. Fractions in the kitchen stop being a puzzle and start being a tool.



## *Rule*

### Dividing fractions: keep, change, flip.

Keep the first fraction, change divide to multiply, and flip the second fraction. Then multiply the tops and the bottoms and simplify.

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## Worked examples

**EXAMPLE 1**

**Q** Work out $\frac{1}{2} \div \frac{1}{4}$.

**SOLUTION**

This is fraction division, and the move to remember is keep, change, flip: the first fraction stays put, divide becomes multiply, and the second fraction turns over.

$\frac{1}{2} \times \frac{4}{1}$ means $1 \times 4 = 4$ on top and $2 \times 1 = 2$ below.

$\frac{4}{2}$ simplifies to 2

**EXAMPLE 2**

**Q** Work out $\frac{3}{4} \div 2$.

**SOLUTION**

This is a fraction divided by a whole number. The whole number 2 is $\frac{2}{1}$ as a fraction, so keep, change, flip still works.

$\frac{3}{4} \times \frac{1}{2}$ means $3 \times 1 = 3$ on top and $4 \times 2 = 8$ below.

So the answer is $\frac{3}{8}$

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## Practice questions

1 A ribbon $\frac{2}{3}$ m long is cut into pieces $\frac{1}{6}$ m long. How many pieces are there?

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2 A baker has 6 kg of flour. Each loaf uses $\frac{1}{3}$ kg. How many loaves can she bake?

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**3** Four friends share $\frac{1}{2}$ of a pizza equally. How much pizza does each friend get?

A $\frac{1}{4}$

B $\frac{1}{8}$

C $\frac{1}{2}$

D 2

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**4** Which multiplication is the same as $\frac{3}{4} \div \frac{3}{8}$?

A $\frac{3}{4} \times \frac{8}{3}$

B $\frac{3}{4} \times \frac{3}{8}$

C $\frac{4}{3} \times \frac{3}{8}$

D $\frac{3}{8} \times \frac{3}{4}$

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**5** Five friends share $2\frac{1}{2}$ litres of juice equally. How many litres does each friend get?

A $2\frac{1}{2}$

B $\frac{1}{5}$

C $\frac{1}{2}$

D $\frac{5}{2}$

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**6** A recipe uses $\frac{5}{6}$ cup of flour for $\frac{2}{3}$ of a batch. How many cups are needed for one whole batch?

A $\frac{5}{6}$

B $1\frac{1}{4}$

C $\frac{5}{9}$

D $\frac{4}{5}$

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**7** A jug holds $\frac{3}{4}$ litre of juice. How many $\frac{1}{2}$ litre cups can you fill from it?

- **A** $1\frac{1}{2}$
- **B** $\frac{3}{8}$
- **C** 2
- **D** $\frac{3}{4}$

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**8** 3 people share $\frac{3}{4}$ lb of chocolate equally. How much chocolate does each person get?

A $\frac{1}{4}$ lb

B $\frac{9}{4}$ lb

C $\frac{1}{12}$ lb

D $\frac{1}{3}$ lb

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**9** How wide is a strip of land with length $\frac{3}{4}$ mi and area $\frac{1}{2}$ square mi?

A $\frac{3}{8}$ mi

B $\frac{2}{3}$ mi

C $\frac{3}{2}$ mi

D $\frac{1}{2}$ mi

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**10** A garden bed is $\frac{8}{9}$ m wide and $\frac{3}{4}$ m long. What is its area in square metres?

A $\frac{2}{3}$

B $\frac{8}{9}$

C $\frac{3}{4}$

D $1\frac{1}{3}$

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## ANSWER KEY

**1.** 4

**2.** 18

**3.** $\frac{1}{8}$

**4.** $\frac{3}{4} \times \frac{8}{3}$

**5.** $\frac{1}{2}$

**6.** $1\ \frac{1}{4}$

**7.** $1\ \frac{1}{2}$

**8.** $\frac{1}{4}$ lb

**9.** $\frac{2}{3}$ mi

**10.** $\frac{2}{3}$

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