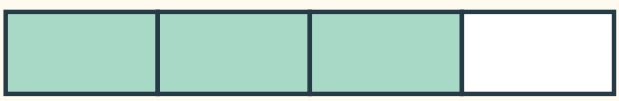
MATHS FIELD GUIDE · GRADE 5

Share a unit fraction equally

OPENING PROBLEM

How many quarter-litre cups fill ¾ of a litre?



¾ litre

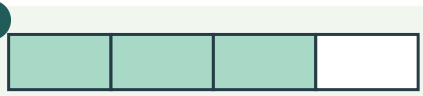
02 Two ways to ask a fraction division question
03 Rules and worked cases
04 Share the remaining flatbread
05 Compare the models
06 Fold and share fairly
07 Check your reasoning

ILLUSTRATED PROBLEM SHEET

Two ways to ask a fraction division question

Identify whether the answer counts groups or measures one share.

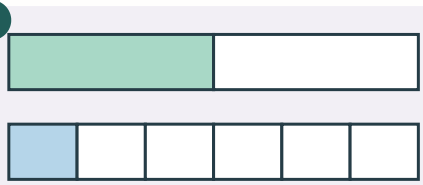
1



How many quarter-litre cups fill ¾ of a litre?

Three cups. Each is one of the three shaded quarters.

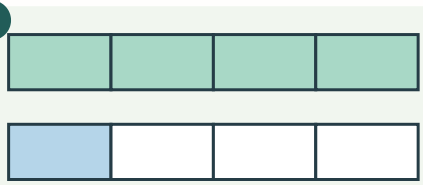
2



Half a litre is shared by three. What is one share?

One sixth of a litre. Three sixths rebuild the half.

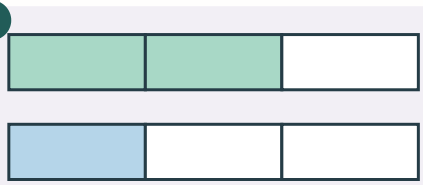
3



How many quarter-litre cups fit in two litres?

Four in one litre, so eight in two.

4



Divide two thirds equally between two. How large is each share?

One third of a litre. Here the two counts people.

2 L in ¼ L cups
eight cups.

¼ L shared by two
⅛ L each.

CHAPTER PROBLEM

Find 1/3 ÷ 4 and check it.

1/12. Four twelfths remake one third.

MATHS REFERENCE · GRADE 5

Share a unit fraction equally

Dividing a unit fraction by a whole number shares that fractional amount equally.

The original whole stays the reference. We make smaller equal parts inside the selected part.

Cases to recognise

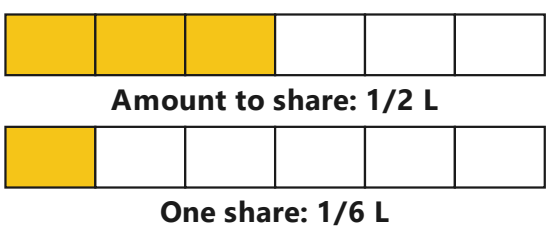
Situation	What to do and why
Share 1/3 of a pizza between four	Each gets 1/12 of a whole pizza. Four twelfths rebuild one third.
Share 1/5 L between two	Each gets 1/10 L or 100 mL.

Read the model

Share half between three

A half-litre of juice is shared equally by three people.

Split the half into three equal pieces. Each piece is one sixth of a litre: 1/2 ÷ 3 = 1/6.



Amount to share: 1/2 L

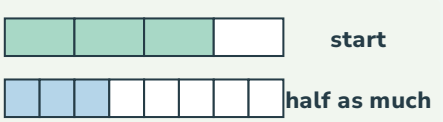
One share: 1/6 L

Why the denominator grows

Each of the two halves could be split into three equal pieces.

The whole litre would then contain six equal pieces. Each person gets one of those sixths.

unit fraction One equal part of a whole.
equal share The same amount for each person or group.
quotient The size of one share in this sharing problem.



What is half of three quarters?

Split each quarter into two eighths. Taking half leaves three eighths.

WORKED INVESTIGATION

Share the remaining flatbread

One quarter of a flatbread remains. Three friends share this piece equally. Imagine cutting each quarter of the original bread into three equal pieces, making twelve in all.

Look at this part	What it tells you
Remaining piece	1/4 of a bread
Split that piece into three	3 equal shares
One share	1/12 of a whole bread

Work it through

Check the division by putting the three shares back together: 3 × 1/12 = 3/12 = 1/4. This rebuilds exactly the piece you started with.

Catch the mistake

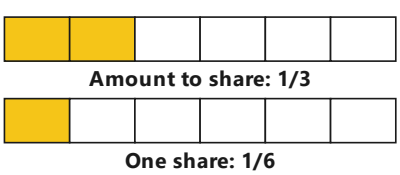
One friend gets a third of the leftover piece and a twelfth of the original bread. Both statements describe the same share because their reference wholes differ.

Compare the cases

Try a third shared by two

Split one third into two equal parts.

Each part is one sixth of the original whole: 1/3 ÷ 2 = 1/6.



Keep the jobs separate

In 1/2 ÷ 3, the half is the total amount. Three is the number of equal shares.

The quotient names the size of one share, not the number of people.

Change one condition

If four friends share the quarter, cut each quarter into four. Each friend now gets 1/16 of the original bread, a smaller share than before.

⅔ of ¾
↓
2 × 3 over 3 × 4
↓
½

Why is the product smaller than three quarters?

Only two of three equal shares of the starting amount are kept.

SHARE A UNIT FRACTION EQUALLY

Compare the models

Check by rejoining

Three shares of one sixth make three sixths, equal to one half.

Multiplication remakes the amount we started with.

A larger denominator can mean a smaller share

A half split among more people gives each person less.

Do not interpret the larger denominator as a larger fraction.

State the limit of this chapter

We are sharing unit fractions by positive whole numbers.

This does not yet teach a general rule for dividing any fraction by any other fraction.

Explain your reasoning

Share 1/4 L equally between two people. How much each?

1/8 L each. Two eighths remake one quarter.

Two more worked cases

Situation	Reasoning
Share 1/2 between one person and then between three	Shares are 1/2 and 1/6. More people give smaller shares.
One child gets 1/20 after four children share equally	The starting piece was 4/20, or 1/5 of the whole.

1½ × 8
↓
8 + 4
↓
12

What does the extra half add?

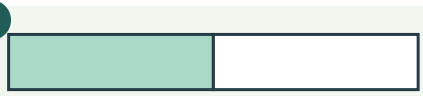
Half of eight is four. One full eight plus four is twelve.

ILLUSTRATED PROBLEM SHEET

Fold and share fairly

Use equal shares of the same whole.

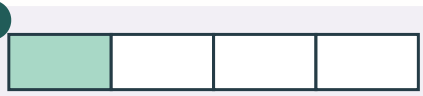
1



Where should a fold go for two equal pieces?

At the middle. One piece covers exactly the same length as the other.

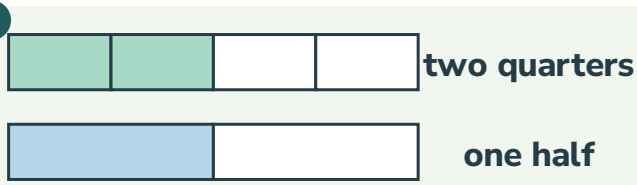
2



How many pieces exactly this size make the whole strip?

Four. Put them end to end without gaps.

3



Which shaded piece covers more?

They reach the same point. Two quarters make one half.

4



Share four counters equally between two people. What is half of four?

Two. Each person gets one of the two equal groups.

Four equal shares
a quarter each.

Four unequal pieces
the count alone cannot name each piece a quarter.

CHAPTER PROBLEM

Why does the share get smaller when more people share the same half-litre?

The same amount is split into more equal parts.

QUESTION BANK · FOLD OR COVER THE RIGHT COLUMN

Check your reasoning

Try the problem	Solution and reasoning
01 How many half-litres fit into ¾ litre, including a partly filled measure?	One and a half measures. One full half-litre leaves a quarter, half of another measure.
02 A strip has a tiny piece and a large piece. Are they halves just because there are two?	No. Both pieces must be equal shares.
03 Five people share one half of a pancake equally. What fraction of a whole pancake does each get?	Cut each half into five equal pieces. A whole pancake would have ten pieces, so each person gets 1/10. Five tenths rebuild the half.
04 Share 1/6 of a cake between five friends. What fraction of the cake per friend?	Five equal parts of each sixth make thirtieths. Each gets 1/30.
05 Three children each received 1/15 of a pie. What piece did they share?	3 × 1/15 = 3/15 = 1/5 of the pie.

¾ × 4/3
↓
12/12
↓
1

Which factor undoes multiplication by ¾?

Its reciprocal, 4/3. The product is exactly one.

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