



11+ Multi-Step Word Problems Revision

Test your skills • Challenge yourself • Build confidence

Suitable for GL, Independent Schools, and
Grammar School Preparation

1. What Are Multi-Step Word Problems?

A multi-step word problem is a mathematical problem that requires **two or more steps** to reach the final answer.

Instead of using just one calculation, you need to work out what is happening in the question, identify the information you need, and decide which calculations to perform and in what order.

For example, imagine that a shop sells 3 notebooks for £2 each and you buy a pen costing £1.50.

To find the total cost, you need to:

1. Calculate the cost of the notebooks.
2. Add the cost of the pen.

Notebook cost:

$$3 \times £2 = £6$$

Total cost:

$$£6 + £1.50 = £7.50$$

Answer: £7.50

This is a multi-step problem because you need to complete one calculation before you can finish the next.

The most important rule

Do not rush into calculating. Understand the problem first.

A correct answer depends not only on accurate arithmetic but also on choosing the right operations in the right order.

2. The Four-Step Method

Use this method whenever you face a multi-step word problem.

Step 1 — Read And Understand

Read the question carefully, and read it again if necessary.

Ask yourself:

- What is happening?
- What information have I been given?
- What am I being asked to find?
- Are there any unnecessary details?

Do not start calculating until you understand the situation.

Step 2 — Plan The Calculations

Identify the operations you need.

You might need to use:

- Addition
- Subtraction
- Multiplication
- Division
- Fractions
- Percentages
- Money calculations
- Time calculations
- Measurements

Write down the calculations in the order you need to complete them.

step 3 — Solve One Step At A Time

Complete the first calculation carefully.

Use the result to complete the next calculation.

Keep your working organised so that you can see how you reached your answer.

Step 4 — Check Your Answer

Ask yourself:

- Have I answered the exact question?
- Have I used the correct units?
- Is my answer reasonable?
- Have I made an arithmetic mistake?
- Have I completed every step?

Remember

Understand → Plan → Calculate → Check

This method helps you stay organised, especially when a question contains several pieces of information.

3. UNDERSTANDING KEY WORDS

Certain words can help you understand what is happening in a problem. However, never rely on keywords alone. Always read the full sentence and consider the context.

Words or phrases	Possible operation
Altogether, total, combined	Addition
Difference, how many more, left	Subtraction
Each, groups of, times as many	Multiplication
Shared equally, per person, each group	Division
Fraction of an amount	Multiplication or division
Percentage discount	Find the reduction, then subtract
Remaining, balance, still needed	Often subtraction
How long, time taken	Time calculation

4. How To Organise A Multi-Step Problem

A useful strategy is to turn the word problem into a short calculation plan.

Example

A family buys 4 cinema tickets costing £8 each. They also buy popcorn for £6 altogether.

How much do they spend?

Step 1: Find the cost of the tickets.

$$4 \times £8 = £32$$

Step 2: Add the cost of the popcorn.

$$£32 + £6 = £38$$

Final answer: £38

Notice that the first calculation gives you the information needed for the second calculation.

Try using a calculation plan

Step	What do I need to find?	Calculation
1	First amount	$4 \times 8 = 32$
2	Total amount	$32 + 6 = 38$

You do not need to draw a table for every question. However, writing each step separately can prevent confusion when the problem becomes more complicated.

5. Working With Money

Money problems often combine multiplication, addition, subtraction and percentages.

Example

A student buys 3 books costing £4.50 each and pays with a £20 note.

How much change should the student receive?

Step 1: Find the total cost.

$$3 \times £4.50 = £13.50$$

Step 2: Calculate the change.

$$£20 - £13.50 = £6.50$$

Answer: £6.50

Common mistake

Do not subtract the price of one book from £20. First calculate the cost of all three books.

Always check whether the question asks for:

- The cost of one item
 - The total cost
 - The amount remaining
 - The change received
-

6. Working With Fractions And Percentages

Some multi-step problems require you to find a fraction or percentage of an amount before completing another calculation.

Example

A school has 240 pupils. Three-eighths of the pupils travel by bus.

How many pupils do not travel by bus?

Step 1: Find the number who travel by bus.

$$240 \div 8 = 30$$

Step 2: Find the number who do not travel by bus.

$$240 - 90 = 150$$

Answer: 150 pupils

Remember

When a question asks how many people or objects are **not** in a particular group, you may need to find the group first and then subtract it from the total.

The same principle applies to percentages.

For example, if 25% of a class are absent, the percentage present is:

$$100\% - 25\% = 75\%$$

You can then calculate 75% of the total number of pupils.

7. Working With Time And Measurements

Time and measurement problems can be challenging because the units do not always work like ordinary whole numbers.

Time facts

- 1 hour = 60 minutes
- 1 minute = 60 seconds
- 1 day = 24 hours

Measurement facts

- 1 kilometre = 1,000 metres
- 1 metre = 100 centimetres
- 1 kilogram = 1,000 grams
- 1 litre = 1,000 millilitres

Example

A train leaves at 09:35 and the journey takes 1 hour 45 minutes.

At what time does it arrive?

Step 1: Add 1 hour.

09:35 → 10:35

Step 2: Add 45 minutes.

10:35 → 11:20

Answer: 11:20

Important

Do not treat 60 minutes as 100 minutes.

When working with time, remember that every 60 minutes make one hour.

8. Five Fully Worked Examples

The following examples cover five different types of multi-step word problems commonly useful for 11+ preparation.

Study the method used in each example, not just the final answer.

Example 1 — Money And Change

Question

A family buys 3 adult tickets costing £12 each and 2 child tickets costing £7.50 each.

They pay with £60.

How much change do they receive?

Step 1: Calculate the adult tickets.

$$3 \times £12 = £36$$

Step 2: Calculate the child tickets.

$$2 \times £7.50 = £15$$

Step 3: Find the total cost.

$$£36 + £15 = £51$$

Step 4: Calculate the change.

$$£60 - £51 = £9$$

Answer: £9

Why this method works

You cannot calculate the change until you know the total cost.

The order matters:

AcumenTeach | Free 11+ Topic Revision —Multi-Step Word Problems

www.acumenteach.com

Adult tickets + child tickets → Total cost → Change

Key lesson

When a question contains different items with different prices, calculate each group separately before finding the total.

Example 2 — Fractions Of An Amount

Question

A library has 360 books.

Two-fifths of the books are fiction. Of the remaining books, one-quarter are reference books.

How many books are neither fiction nor reference books?

Step 1: Find the number of fiction books.

$$360 \div 5 = 72$$

$$72 \times 2 = 144$$

There are 144 fiction books.

Step 2: Find the number of books remaining.

$$360 - 144 = 216$$

Step 3: Find the number of reference books.

One-quarter of the remaining 216 books:

$$216 \div 4 = 54$$

There are 54 reference books.

Step 4: Find the number of books that are neither fiction nor reference books.

$$216 - 54 = 162$$

Answer: 162 books

Why this method works

The question says one-quarter of the **remaining books**, not one-quarter of the original 360 books.

That distinction is important.

Key lesson

Pay close attention to phrases such as **of the remainder**, **of what is left** and **of the original amount**.

Example 3 — Percentages And Discounts

Question

A bicycle originally costs £240.

A shop offers a 15% discount. A customer then pays an additional £12 for a helmet.

How much does the customer spend altogether?

Step 1: Calculate 10% of £240.

$$£240 \div 10 = £24$$

Step 2: Calculate 5% of £240.

$$£24 \div 2 = £12$$

Step 3: Calculate the 15% discount.

$$£24 + £12 = £36$$

Step 4: Find the discounted bicycle price.

$$£240 - £36 = £204$$

Step 5: Add the cost of the helmet.

$$£204 + £12 = £216$$

Answer: £216

Why this method works

The discount reduces the bicycle price. The helmet is then added to the discounted price.

The £12 helmet cost is not part of the percentage discount.

Key lesson

When a question involves a discount, find the discount first, subtract it from the original price, and then deal with any additional costs.

Example 4 — Time And Speed

Question

A family leaves home at 08:40.

They drive for 1 hour 35 minutes to reach a museum. They spend 2 hours 20 minutes at the museum before driving for another 45 minutes to a restaurant.

At what time do they arrive at the restaurant?

Step 1: Find the arrival time at the museum.

$$08:40 + 1 \text{ hour} = 09:40$$

$09:40 + 35 \text{ minutes} = 10:15$

They arrive at 10:15.

Step 2: Find the time they leave the museum.

$10:15 + 2 \text{ hours} = 12:15$

$12:15 + 20 \text{ minutes} = 12:35$

They leave at 12:35.

Step 3: Add the final journey.

$12:35 + 45 \text{ minutes} = 13:20$

Answer: 13:20

This is **1:20 pm**.

Why this method works

Each part of the journey must be completed in order.

First calculate the arrival time, then the departure time, and finally the restaurant arrival time.

Key lesson

For journeys with stops, calculate each stage separately and carry the time forward.

Example 5 — Multiple Operations And Reasoning

Question

A school orders 18 boxes of pencils.

Each box contains 24 pencils.

The school distributes 275 pencils to pupils.

The remaining pencils are shared equally between 7 classrooms.

How many pencils does each classroom receive?

Step 1: Find the total number of pencils.

$$18 \times 24 = 432$$

There are 432 pencils altogether.

Step 2: Find how many pencils remain after distribution.

$$432 - 275 = 157$$

There are 157 pencils remaining.

Step 3: Divide the remaining pencils between the classrooms.

$$157 \div 7 = 22 \text{ remainder } 3$$

Each classroom receives 22 pencils, with 3 pencils left over.

Answer: 22 pencils per classroom, with 3 pencils left over.

Why this method works

The pencils must first be counted, then the distributed pencils removed, and finally the remaining pencils divided.

Key lesson

Do not assume that a sharing question will always produce an exact answer. Read the question carefully and state any remainder clearly.

9. Common 11+ Mistakes

MISTAKE 1 — Calculating before understanding

A question may contain several numbers, but not every number should be used in the first calculation.

Better approach: Identify what you need to find first.

MISTAKE 2 — Using the wrong order

If you are asked for change, you must calculate the total cost before subtracting it from the amount paid.

Better approach: Write the calculation plan before starting.

MISTAKE 3 — Misreading fractions

“Two-thirds of the remainder” is different from “two-thirds of the original amount”.

Better approach: Underline words that explain which amount the fraction applies to.

MISTAKE 4 — Ignoring units

A question may use hours and minutes, metres and kilometres, or pounds and pence.

Better approach: Convert units when necessary and include units in your final answer.

MISTAKE 5 — Stopping too early

You may correctly calculate an intermediate result but forget to answer the question.
Better approach: Read the final sentence again before writing your answer.

MISTAKE 6 — Making avoidable arithmetic errors

Even a correct method can produce a wrong answer if the calculations are inaccurate.

Better approach: Estimate the answer and check the arithmetic.

10. Five Practice Questions

Now apply the methods independently.

Work through each question carefully. Write down your calculations and remember to check your final answer.

QUESTION 1 — SHOPPING

A family buys 4 sandwiches costing £3.25 each and 3 drinks costing £1.80 each.

They pay with a £25 note.

How much change do they receive?

Answer: £_____

QUESTION 2 — FRACTIONS

A school has 480 pupils.

Three-eighths of the pupils walk to school. One-quarter of the remaining pupils travel by bus.

How many pupils travel by neither walking nor bus?

Answer: _____ pupils

QUESTION 3 — PERCENTAGES

A coat costs £160.

During a sale, the price is reduced by 25%. A customer then buys a scarf costing £18.

What is the total amount the customer pays for the coat and scarf?

Answer: £_____

QUESTION 4 — TIME

A football match starts at 14:35.

The first half lasts 45 minutes, followed by a 15-minute half-time break. The second half lasts 45 minutes.

At what time does the match finish?

Answer: _____

QUESTION 5 — MULTI-STEP REASONING

A school buys 15 packs of exercise books.

Each pack contains 28 books.

The school gives 96 books to Year 5 and 84 books to Year 6. The remaining books are shared equally between 6 classes.

How many books does each class receive?

Answer: _____ **books per class**

ANSWERS AND FULL WORKING

QUESTION 1 — SHOPPING

Four sandwiches cost:

$$4 \times \text{£}3.25 = \text{£}13.00$$

Three drinks cost:

$$3 \times \text{£}1.80 = \text{£}5.40$$

Total cost:

$$\text{£}13.00 + \text{£}5.40 = \text{£}18.40$$

Change:

$$\text{£}25.00 - \text{£}18.40 = \text{£}6.60$$

Answer: £6.60

QUESTION 2 — FRACTIONS

Total pupils = 480.

Three-eighths walk to school:

$$480 \div 8 = 60$$

$$60 \times 3 = 180$$

Number who walk = 180.

Remaining pupils:

$$480 - 180 = 300$$

One-quarter of the remaining pupils travel by bus:

$$300 \div 4 = 75$$

Number who travel by neither walking nor bus:

$$300 - 75 = 225$$

Answer: 225 pupils

Check: 180 walk, 75 travel by bus, and 225 do neither.

$$180 + 75 + 225 = 480.$$

QUESTION 3 — PERCENTAGES

Original coat price = £160.

A 25% discount is one-quarter of the original price:

$$£160 \div 4 = £40$$

Discounted coat price:

$$£160 - £40 = £120$$

Add the scarf:

$$£120 + £18 = £138$$

Answer: £138

QUESTION 4 — TIME

Start time = 14:35.

First half:

$$14:35 + 45 \text{ minutes} = 15:20$$

Half-time break:

$$15:20 + 15 \text{ minutes} = 15:35$$

Second half:

15:35 + 45 minutes = 16:20

Answer: 16:20 (4:20 pm)

QUESTION 5 — MULTI-STEP REASONING

Each pack contains 28 books, and there are 15 packs.

Total books:

$$15 \times 28 = 420$$

Books given to Year 5 and Year 6:

$$96 + 84 = 180$$

Books remaining:

$$420 - 180 = 240$$

Share equally between 6 classes:

$$240 \div 6 = 40$$

Answer: 40 books per class

11. FINAL REVISION CHECKLIST

Before finishing, make sure you can:

- ☐ Identify what a word problem is asking.
 - ☐ Pick out the relevant information.
 - ☐ Decide which operations are needed.
 - ☐ Work out the calculations in the correct order.
 - ☐ Solve problems involving money and change.
 - ☐ Find fractions and percentages of amounts.
 - ☐ Solve time and measurement problems.
 - ☐ Deal with remainders where appropriate.
 - ☐ Include the correct units.
 - ☐ Check that the final answer answers the original question.
-

THE GOLDEN RULES

1. UNDERSTAND

Read the whole question carefully.

2. PLAN

Decide what you need to calculate and in which order.

3. SOLVE

Complete one step at a time.

4. CHECK

Make sure the answer is sensible and answers the question.

Remember: a difficult-looking problem becomes easier when you break it into smaller steps.

ACUMEN TEACH

Building mathematical understanding, one step at a time.

Revisit the worked examples, practise explaining your reasoning, and use the four-step method whenever you face an unfamiliar question.

Explore more 11+ resources at:

www.acumen-teach.co.uk

© Acumen Teach | For personal use only