

MULTIPLICATION AND ORDER

Calculate, explain and check

GCSE Mathematics 1MA1 • L002

The goal and the evidence

Fluency, reasoning and checking

Calculate with signed products, quotients and mixed operations

Explain a decision. Check independently.

Starting-point diagnostic

R1–R3 • Attempt before feedback

$$-6 + 9 \text{ and } -4 - (-7)$$

$$6 \times 4 \text{ and } 24 \div 6$$

Write 3^2 as a multiplication.

Signed multiplication

$$3 \times (-4) = -12$$

Three groups of -4

Your turn: $4 \times (-3)$

Why two negative factors give a positive

$$(-3) \times 4 = -12$$

$$(-3) \times (-4) = 12$$

The products sum to zero.

Division reverses multiplication

$$-24 \div 6 = -4$$

$$\text{Check: } 6 \times (-4) = -24$$

Your turn: $-24 \div (-6)$

Operation priority

$$5 + 2 \times (-3) = 5 - 6 = -1$$

Your turn: $7 + 3 \times (-2)$

Multiply before adding.

SAME PRIORITY: LEFT TO RIGHT

$$18 \div 3 \times 2 = 6 \times 2 = 12$$

Brackets would change the grouping.

Diagnostic pause

Choose an answer and explain the order.

$$18 \div 3 \times 2 = ?$$

A 3 B 12 C 6

Careful variation

A1 • Explain what changes

$$4 \times 3; 4 \times (-3)$$

$$(-4) \times 3; (-4) \times (-3)$$

Explain the pattern.

Independent application

A2 • Try without prompts

$$18 \div 3 \times 2$$

$$18 \div (3 \times 2)$$

$$20 - 8 + 3$$

Use the method in context

A3 • Show working

Balance $-\pounds 7$; three $\pounds 4$ payments; spend $\pounds 9$.

Write one expression. Find the balance.

Intentional practice feedback

Check after attempting A3

$$-7 + 3 \times 4 - 9 = -4$$

Check: $-4 + 9 - 12 = -7$

A claim to test

C1 • Reason, do not just calculate

“Two negatives always make a positive.”

Compare addition and multiplication.

Deepen the reasoning

C2 • Available to either tier

Compare $(-3)^2$ and -3^2 .

Explain what the brackets change.

Retrieval without notes

Q1–Q6 • Retry after a delay

Q1–Q3

$$-5 \times 4$$

$$(-6) \times (-3)$$

$$-28 \div 7$$

Q4–Q6

$$20 \div 5 \times 2$$

$$3 + 4 \times 2$$

$$(3 + 4) \times 2$$

Independent exit evidence

P1–P2 • Teacher review • 4 marks

P1 • 2 MARKS

$$6 + 3 \times (-4)$$

Show the first operation.

P2 • 2 MARKS

$$-42 \div (-6)$$

Give a multiplication check.

Feedback and next steps

P3 • Completion is not mastery

Name the decision you corrected.

Choose a fresh question and a retry date.

Before the next lesson

L003: place value, decimals and estimation

Complete F1 tomorrow without notes.

Read and attempt F2; bring one question.

Optional stretch

Calculate $48 \div (-6) \times (-2) + 5$, showing equal-priority operations left to right.

Show a method. Explain a check or counterexample.

Optional deep challenge

Insert brackets in $6+2\times 5-4$ to make 36 and explain your choice.

Show a method. Explain a check or counterexample.

L002 Recall & Review

Multiplication, division and order



Fresh evidence: prove the objective

Solve a new question without prompts. Explain one check, then correct one error in your working.

Objective: Calculate with signed products, quotients and mixed operations; justify the order and check with an inverse.

Write the next practice step before you leave. It must test the method again, not simply copy today's example.

Feedback language

Use the full phrases before the abbreviations.

What Went Well (WWW)

I selected an efficient numerical method, showed the key steps clearly and checked the sign, size or accuracy of my answer.

Identify the mathematical method, representation, reasoning or check that improved.

Even Better If (EBI)

I will make the place-value, sign or operation decision explicit and use estimation or an inverse calculation to check a fresh question.

Set one precise next-step action and test it on a fresh question.

Extension route

Choose this route only after the core evidence is secure.

Stretch

Calculate $48 \div (-6) \times (-2) + 5$, showing equal-priority operations left to right.

Deep challenge

Insert brackets in $6 + 2 \times 5 - 4$ to make 36 and explain your choice.

Explain your reasoning clearly enough that another learner could check it.