GCSE ONLINE TUTORING × RS REMOTE TUTORING

Functional skills level 1 Maths exam practice notebook

(for all exam boards)

COMPANION TO THE STUDENT LEARNING GUIDE

TRY IT. SHOW THE METHOD. EXPLAIN THE DECISION. CHECK IT.

Original practice for the shared reformed Level 1 mathematics content in England.

31 topic sets	124 question groups • 434 marks
6 mixed challenges	2 complete 60-mark practice mocks
Extra graph and measuring practice	Writing grids and visual answer guides
Worked solutions	Original marking guidance and review tools

Name: _____

Tutor / centre: _____

Awarding organisation: _____

Edition 1 • Sources checked 13 November 2026

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About this practice notebook

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Questions, contexts, data, solutions and diagrams are newly authored. Official papers were consulted to understand the mathematical demand, not to reproduce questions or create near-identical versions with changed numbers. No commercial book pages, awarding-body logos, official mark schemes or learner scripts are reproduced.

What “for all exam boards” means

This book practises the shared reformed Functional Skills Level 1 mathematics content used by Ofqual-regulated awarding organisations in England. The different Core Skills and Essential Skills systems elsewhere in the UK are outside this curriculum claim. Content points 1-31 match the complete numbering used in the reviewed Pearson and NCFE specifications and the companion learning guide. [S1-S3]

The book is not endorsed, approved or accredited by any awarding organisation, DfE, Ofqual or CGP. “Exam practice” describes independently written preparation, not predicted or official questions. The source record distinguishes papers actually inspected from resource-access pages checked. It does not claim an exhaustive review of every paper from every provider.

Marks, mocks and pass boundaries

Each topic set has 14 marks. Each practice mock has 60 marks: 15 non-calculator and 45 calculator. This reflects the common calculator weighting. Suggested timings of 30 and 90 minutes are workbook choices, not universal board rules. These are educational practice papers, not externally validated assessments or exact board replicas. [S2]

There is no official pass mark for this book. Its mark allocations help identify what is understood. Actual awarding-body rules on accuracy, implied methods, follow-through, equipment and boundaries can differ. A completed book or mock score cannot guarantee a pass.

Exercise data and permissions

Pay and interest rates and prices are invented inputs, not current financial guidance. Keep useful calculation precision and round final answers as requested. Buy enough whole packs when the context requires it. Print constructions at 100% or actual size; use stated dimensions for diagrams marked not to scale.

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FROM A LEARNED METHOD TO AN INDEPENDENT ANSWER

Practise so that you improve

1 • Learn, then attempt

Use the student learning guide for a new method. In each topic set, start with Part A without a calculator, except where the instruction permits one. Part B permits a calculator. Attempt the whole set before checking the solutions.

2 • Show the chain of reasoning

Write what the numbers represent, show useful steps and include units. If asked to decide, finish with a comparison using figures. Keep an estimate or inverse check separate from simply repeating the same calculation.

3 • Mark and repair

Numbers in brackets in the solutions are the original mark allocations. Accept equivalent correct methods. Do not award the same mark twice. Mark a stage once when the required evidence is present; use a tutor for ambiguous work.

4 • Retry without the model

Classify an error: reading, method, calculation, units, accuracy or explanation. Correct the cause and retry later with the solution covered. The score tracker is a learning tool, not an exam prediction.

5 • Connect topics

Mixed challenges remove the topic label. Read the final request first, choose useful information and make the connection between calculations. The final contextual answer matters as much as intermediate numbers.

6 • Use timed practice

For a practice mock, use 30 minutes for Section A and 90 minutes for Section B, with no notes. Put Section A aside before beginning Section B. Follow your centre’s actual timings and rules when using official materials.

A COMPLETE ANSWER

Method → calculation → units → decision supported by figures → sensible check. If a different valid method reaches the answer, explain it clearly.

For a construction, use a ruler, pencil and protractor or compasses as appropriate. Workbook checking tolerances are normally ±1 mm for lengths and ±2° for angles. They are not a statement of every board’s marking rules.

CROSS-BOARD CONTENT • BOARD-SPECIFIC FAMILIARISATION

Prepare for your own exam board

The common content transfers between boards. Paper layout, timing, onscreen tools, permitted equipment and mark schemes must come from your own awarding organisation. The routes below were checked on 13 November 2026. See sources S3-S12 at the back.

Organisation / route	What was checked for this edition
Pearson Edexcel	Qualification/specification and official resource-access pages; onscreen samples and retired papers available through its tools.
City & Guilds	Level 1 Sample 2 non-calculator paper and public past-paper listing; paper and Open Assess preparation routes.
NCFE	Current Level 1 online-sample mark scheme and practice page; latest paper materials may require centre login.
Open Awards	Public Level 1 sample assessment and mark scheme, version 1.2.
AQA	June 2022 Level 1 non-calculator paper, official past-paper route and November 2021 examiner report inspected. Historical feedback is not a current rulebook.
Highfield	Official mock-assessment access page, including the Highfield Core route. Individual papers were not inspected.
NOCN	Official Level 1 qualification/specification route and online assessment information. Individual papers were not inspected.
TQUK / VQA route	Official Functional Skills suite and specification route; the TQUK suite URL redirected to VQA during checking. Confirm your registered qualification with your centre.

What this means for your practice

Use this notebook to strengthen number methods, interpreting information, drawings and supported decisions. Then complete an official sample in the delivery mode you will actually use. Do not assume that a different board’s paper is identical to yours.

CONFIRM WITH YOUR CENTRE

Awarding organisation and qualification number: _____
Non-calculator / calculator timings: _____
Approved equipment and delivery mode: _____
Official sample and familiarisation completed: _____

CONTENT POINTS 1-17 • MATCHES THE LEARNING GUIDE

Find your topic practice

No.	Topic	Questions	Solutions
1	Whole numbers to one million	9-10	91
2	Positive and negative numbers	11-12	92
3	Multiplying and dividing by 10, 100 and 1,000	13-14	93
4	Multiplication and division facts	15-16	94
5	Simple word formulae	17-18	95
6	Squares of numbers	19-20	96
7	Order of operations	21-22	97
8	Common fractions and mixed numbers	23-24	98
9	Fractions of quantities	25-26	99
10	Decimals to three decimal places	27-28	100
11	Decimal calculations to two decimal places	29-30	101
12	Rounding for a stated purpose	31-32	102
13	Reading and comparing percentages	33-34	103
14	Percentages of quantities and simple changes	35-36	104
15	Estimation with fractions and decimals	37-38	105
16	Equivalent fractions, decimals and percentages	39-40	106
17	Simple ratio and direct proportion	41-42	107

Other sections

Diagnostic: 7-8. Mixed challenges: 71-76; solutions 122-124. Mock A: 77-83; solutions 125-128. Mock B: 84-90; solutions 129-132.

The maps use the full 31-point numbering in the reviewed specifications. DfE’s current HTML presentation combines some entries, so its visible numbering differs. Every listed point has four original question groups.

CONTENT POINTS 18-31 • MATCHES THE LEARNING GUIDE

Find your topic practice

No.	Topic	Questions	Solutions
18	Simple interest	43-44	108
19	Discounts and sale prices	45-46	109
20	Converting everyday units	47-48	110
21	Simple map and drawing scales	49-50	111
22	Perimeter, area and composite rectangles	51-52	112
23	Volume of cubes and cuboids	53-54	113
24	Drawing shapes, symmetry and angle size	55-56	114
25	Plans, elevations and nets	57-58	115
26	Measuring angles and describing direction	59-60	116
27	Tables, bar charts, pie charts and line graphs	61-62	117
28	Grouping discrete data	63-64	118
29	Mean and range	65-66	119
30	The probability scale	67-68	120
31	Simple events and equally likely outcomes	69-70	121

Drawing and extra practice

Visual answer guides: 133-138. Extra line-graph, measuring and pattern practice: 139-141; solutions 142-144. Progress and error review: 145-146. Sources: 147-150.

The maps use the full 31-point numbering in the reviewed specifications. DfE’s current HTML presentation combines some entries, so its visible numbering differs. Every listed point has four original question groups.

16 MARKS • NO CALCULATOR • NOT A PASS TEST

Diagnostic: choose a starting point

1 [1 marks] Order -6,4,-1,0.

2 [1 marks] Calculate 23×7.

3 [2 marks] Find 4/5 of 60.

4 [1 marks] Calculate 6.4-2.75.

5 [1 marks] Find 25% of £160.

6 [2 marks] Share £48 in the ratio 1:3.

7 [2 marks] Find area and perimeter of a 7 m by 3 m rectangle.

8 [2 marks] Find mean and range of 2,4,6.

9 [1 marks] Convert 2.3 litres to ml.

10 [1 marks] Use cost = £5 + hours×£3 for 4 hours.

11 [1 marks] A bag has 2 black and 3 white identical counters. Find P(black).

12 [1 marks] Starting west, turn 90° clockwise. State the direction.

CHECK THE METHOD, THEN CHOOSE A TOPIC

Diagnostic solutions

1. -6,-1,0,4 (1).

2. 161 (1).

3. 60÷5 = 12 (1); 12×4 = 48 (1).

4. 3.65 (1).

5. £40 (1).

6. 4 parts, £12 each (1); shares £12 and £36 (1).

7. Area 21 m² (1), perimeter 20 m (1).

8. Mean 4 (1), range 4 (1).

9. 2,300 ml (1).

10. £17 (1).

11. 2/5 (1).

12. North (1).

If the gap is...	Revisit
Whole-number and decimal calculation	Topics 1-7 and 10-12
Fractions, percentages and ratio	Topics 8-9 and 13-19
Units, geometry or direction	Topics 20-26
Data and probability	Topics 27-31

MY FIRST TARGET

Topic: ____ Method to revisit: _____
Date to practise: ____ Date to retry: ____

TOPIC PRACTICE • PART A • 4 MARKS

01. Whole numbers to one million

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

1.1 [2 marks] Write 620,407 in words. State the value of the digit 2.

1.2 [2 marks] Order 308,090; 380,009; 308,900; 380,090 from smallest to largest. Explain the first comparison.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 01 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

1.3 [4 marks] A visitor counter reads 418,765 on Monday and 429,380 on Friday. Find the increase and check it using addition.

1.4 [6 marks] A store has 165,480 labels. It receives 28,750 more and uses 47,965. It needs at least 145,000 left for next week. Decide whether it has enough, state the surplus or shortfall and check your calculation.

Total: ____ /14. Worked solutions: page 91. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

02. Positive and negative numbers

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

2.1 [2 marks] Order -12, 5, -3, 0 from smallest to largest. Which is closest to zero?

2.2 [2 marks] The temperature rises from -9°C to 6°C. Find the rise and explain the role of zero.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 02 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

2.3 [4 marks] An account starts at -£46. A payment of £85 goes in and a £27 bill goes out. Find the final balance and explain whether it is above or below zero.

2.4 [6 marks] A cold store starts at -7°C, warms by 11°C and then cools by 9°C. The safe range is -8°C to -4°C inclusive. Find the final temperature, decide whether it is safe and state the difference from the lower limit. Show a number-line or equivalent staged check.

Total: ____ /14. Worked solutions: page 92. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

03. Multiplying and dividing by 10, 100 and 1,000

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

3.1 [2 marks] Calculate 6.08×100 and 42.7÷10.

3.2 [2 marks] Calculate 0.935×1,000 and 580÷100.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 03 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

3.3 [4 marks] A packet weighs 0.048 kg. Find the weight of 100 packets in kg, then in grams. Use 1 kg = 1,000 g.

3.4 [6 marks] A press makes 100 identical parts in each batch. Each part uses 0.036 m of wire. Ten batches are made. Find wire per batch, total wire and the number of complete 50 m rolls needed. Explain your decision.

Total: ____ /14. Worked solutions: page 93. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

04. Multiplication and division facts

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

4.1 [2 marks] Calculate 47×6. Show a split or written method.

4.2 [2 marks] Calculate 224÷8. Check by multiplication.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 04 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

4.3 [4 marks] There are 157 folders. Each box holds 12. Find the number of full boxes and folders left over, then the number of boxes needed for all folders.

4.4 [6 marks] A workshop runs 18 sessions, with 24 learners per session. Cards come in packs of 25 costing £7 per pack. Every learner needs one card. Find attendance places, minimum packs and total cost; check the capacity.

Total: ____ /14. Worked solutions: page 94. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

05. Simple word formulae

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

5.1 [2 marks] Use total cost = £7 + days×£6 for 4 days. Show the order of operations.

5.2 [2 marks] Use points = wins×3 + draws for 6 wins and 4 draws.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 05 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

5.3 [4 marks] A repair rule is charge = £18 + hours×£12. Find the charge for 3 hours and the change from £60.

5.4 [6 marks] A club uses seats needed = guests + helpers. It uses tables needed = seats needed÷6, rounded up to a whole table. There are 47 guests and 8 helpers. Each table costs £9 to hire. Find the minimum tables and cost, and check that everyone can sit.

Total: ____ /14. Worked solutions: page 95. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

06. Squares of numbers

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

6.1 [2 marks] Calculate 12^2 and 18^2.

6.2 [2 marks] A learner says $15^2 = 30$. Explain the error and give the correct result.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 06 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

6.3 [4 marks] A square display has 17 rows of 17 photographs. Find the total and how many more photographs it holds than a 15-by-15 display.

6.4 [6 marks] A square tray holds 16 rows of 16 pots. A second tray holds 14 rows of 14 pots. The grower needs space for 440 pots in total. Decide whether the two trays are sufficient, find the spare spaces and show a check.

Total: ____ /14. Worked solutions: page 96. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

07. Order of operations

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

7.1 [2 marks] Calculate $30-4\times6$ and $(30-4)\times6$.

7.2 [2 marks] Calculate $48\div6\times2$ and $5+3^2$.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 07 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

7.3 [4 marks] A bill is written as £60-4×£8+£5. Calculate it and explain why subtracting 4 first changes the meaning.

7.4 [6 marks] A group receives £150. It buys 6 entry passes at £14 each and 3 maps at £5 each. Write one calculation for money left, evaluate it, and show an inverse or total check.

Total: ____ /14. Worked solutions: page 97. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

08. Common fractions and mixed numbers

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

8.1 [2 marks] Which is larger, 5/6 or 3/4? Explain with a common denominator.

8.2 [2 marks] Write 9/4 as a mixed number and 2 1/3 as an improper fraction.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 08 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

8.3 [4 marks] Two equal-sized containers are 7/8 full and 5/6 full. Decide which has more liquid and show your comparison using twenty-fourths.

8.4 [6 marks] Three same-sized tanks are filled to 3/5, 5/8 and 2/3 of capacity. Order them from least to most full using a common denominator. A supervisor says the 5/8 tank is the fullest. Explain whether this is correct.

Total: ____ /14. Worked solutions: page 98. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

09. Fractions of quantities

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

9.1 [2 marks] Find 3/7 of 84. Show two steps.

9.2 [2 marks] Find 5/8 of 64. Show two steps.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 09 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

9.3 [4 marks] A library receives 96 books. Five sixths are fiction. Find the fiction count and the non-fiction count.

9.4 [6 marks] A group has 72 people. Three eighths choose a morning visit; the rest choose afternoon. Each afternoon minibus seats 10 people. Find both group sizes and the minimum afternoon minibuses. Check the seat count.

Total: ____ /14. Worked solutions: page 99. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

10. Decimals to three decimal places

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

10.1 [2 marks] Order 3.082, 3.28, 3.208 from smallest to largest.

10.2 [2 marks] Write 6.4 with three decimal places and state the value of the 4 in 2.047.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 10 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

10.3 [4 marks] Cable lengths are 1.095 m, 1.15 m and 1.109 m. A gap needs at least 1.100 m. Identify the shortest cable that is long enough and explain.

10.4 [6 marks] A quality rule accepts rods from 0.745 m to 0.780 m inclusive. Rods measure 0.740, 0.754, 0.780, 0.708 and 0.775 m. List accepted rods in increasing order, count rejects and justify the two boundary decisions.

Total: ____ /14. Worked solutions: page 100. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

11. Decimal calculations to two decimal places

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

11.1 [2 marks] Calculate 6.45+2.78. Show a method.

11.2 [2 marks] Calculate 9.2-3.67. Show a method.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 11 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

11.3 [4 marks] Four drinks cost £1.85 each. Find the total and change from £10.

11.4 [6 marks] A cafe buys 8 bags of coffee at £6.75 each and 3 cartons of milk at £1.40 each. It has a £60 budget. Find total cost, decide whether the budget is enough and show a check.

Total: ____ /14. Worked solutions: page 101. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

12. Rounding for a stated purpose

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

12.1 [2 marks] Round 7.386 to one decimal place and to two decimal places.

12.2 [2 marks] Round 24,651 to the nearest hundred and the nearest thousand.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 12 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

12.3 [4 marks] Calculate 17.6÷3 and round the result to two decimal places. Explain which digit decides the rounding.

12.4 [6 marks] A ribbon is 18.5 m long and each badge needs 0.6 m. Find the quotient to one decimal place, the number of complete badges possible and the ribbon remaining. Explain why the rounded quotient is not the badge count.

Total: ____ /14. Worked solutions: page 102. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

13. Reading and comparing percentages

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

13.1 [2 marks] Order 45%, 9%, 70%, 65% from least to greatest.

13.2 [2 marks] A chart shows 25% walk and 40% travel by bus. State which share is larger and by how many percentage points.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 13 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

13.3 [4 marks] A survey records 35% tea, 45% coffee and 20% water. Check that this accounts for everyone and compare the largest and smallest shares.

13.4 [6 marks] Course X reports 80% completion among 20 learners. Course Y reports 65% among 40 learners. Find the number completing each course. Explain which has the higher completion share and which has more completers.

Total: ____ /14. Worked solutions: page 103. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

14. Percentages of quantities and simple changes

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

14.1 [2 marks] Find 35% of £140. Show your building blocks.

14.2 [2 marks] Increase 80 by 15%. Show the increase and new total.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 14 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

14.3 [4 marks] A £240 fee falls by 25%. Find the reduction and the new fee.

14.4 [6 marks] A club has 160 members. Membership rises by 20%. Each new member receives a £4 welcome pack. Find the increase in members, the new membership and total welcome-pack cost. Check the increased count.

Total: ____ /14. Worked solutions: page 104. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

15. Estimation with fractions and decimals

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

15.1 [2 marks] Estimate 39×£5.10 using convenient whole numbers. State the values you used.

15.2 [2 marks] Estimate 3/4 of 198 using a nearby convenient whole.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 15 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

15.3 [4 marks] A learner claims 21×£3.95 = £829.50. Use an estimate to assess the claim and give the exact cost.

15.4 [6 marks] A buyer has £150 for 31 items at £4.80 each. Estimate the cost, then calculate it exactly and decide whether the money is enough. Explain why an estimate alone may be insufficient here.

Total: ____ /14. Worked solutions: page 105. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

16. Equivalent fractions, decimals and percentages

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

16.1 [2 marks] Write 3/4 as a decimal and a percentage.

16.2 [2 marks] Write 0.2 as a simplest fraction and a percentage.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 16 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

16.3 [4 marks] A group of 80 people has 0.35 of its members attending online. Express the share as a percentage and a simplest fraction, then find the online count.

16.4 [6 marks] Supplier A says 3/5 of its 100 crates are reusable. Supplier B says 65% of its 80 crates are reusable. Compare the reusable shares and the reusable counts, stating clearly whether the same supplier leads both comparisons.

Total: ____ /14. Worked solutions: page 106. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

17. Simple ratio and direct proportion

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

17.1 [2 marks] Simplify 18:30 and explain the common divisor used.

17.2 [2 marks] Four notebooks cost £10. At the same price per notebook, find the cost of 10.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 17 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

17.3 [4 marks] Share £126 in the ratio 2:5. Check that the shares total £126.

17.4 [6 marks] A drink uses concentrate and water in the ratio 1:4. Make 3 litres of drink. Find each amount in ml. Concentrate is sold in 500 ml bottles. Find the minimum bottles and concentrate left after mixing.

Total: ____ /14. Worked solutions: page 107. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

18. Simple interest

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

18.1 [2 marks] Find one year's simple interest on £700 at an invented rate of 5%.

18.2 [2 marks] Find total interest on £300 at 10% simple interest for 4 years.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 18 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

18.3 [4 marks] An invented account pays 15% simple interest per year on £400 for 2 years. Find interest earned and final balance.

18.4 [6 marks] A club saves £800 at an invented 5% annual simple interest for 3 years. It needs £950 for equipment after that time. Find annual interest, total balance and any surplus or shortfall. Explain the basis of each year's interest.

Total: ____ /14. Worked solutions: page 108. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

19. Discounts and sale prices

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

19.1 [2 marks] A £75 bag has 20% off. Find the saving and sale price.

19.2 [2 marks] A £180 chair has 35% off. Show a percentage method and find sale price.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 19 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

19.3 [4 marks] Shop A sells a £120 lamp at 25% off plus £8 delivery. Shop B charges £101 including delivery. Which delivered offer is cheaper and by how much?

19.4 [6 marks] A supplier sells 6 storage boxes at a normal £24 each, with 15% off the goods total. Delivery costs £9 and is not discounted. A second supplier charges £135 delivered for the same boxes. Choose the cheaper supplier and show a check.

Total: ____ /14. Worked solutions: page 109. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

20. Converting everyday units

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

20.1 [2 marks] Convert 2.75 litres to ml and 4.2 kg to grams.

20.2 [2 marks] Convert 2 h 40 min to minutes and 3 feet to inches. Use 1 foot = 12 inches.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 20 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

20.3 [4 marks] A train leaves at 14:45 and arrives at 17:10. Find the journey time and convert it to minutes.

20.4 [6 marks] A worker starts at 21:40 and finishes at 01:15 next day, with a 25-minute unpaid break. Find paid hours and pay at an invented £12 per hour. Give a check on the time.

Total: ____ /14. Worked solutions: page 110. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

21. Simple map and drawing scales

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

21.1 [2 marks] A map uses 1 cm for 400 m. Find the real distance for 3.5 cm.

21.2 [2 marks] A drawing uses 1 cm for 2 m. What drawing length represents 9 m?

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 21 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

21.3 [4 marks] A route has two map segments measuring 2.8 cm and 4.7 cm. The scale is 1 cm to 200 m. Find total real distance in m and km.

21.4 [6 marks] Draw a scale plan of a rectangular 8 m by 5 m room using 1 cm for 1 m. Include a 2 m by 1 m table with a long edge against the centre of an 8 m wall. Label real dimensions and scale.

0.5 cm squares at 100% / actual-size printing

Total: ____ /14. Worked solutions: page 111. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

22. Perimeter, area and composite rectangles

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

22.1 [2 marks] Find perimeter and area of a rectangle 11 m by 4 m.

22.2 [2 marks] A rectangle is 6 cm wide with area 54 cm². Find its length and explain your operation.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 22 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

22.3 [4 marks] A 10 m by 7 m rectangle has a 4 m by 3 m corner removed. Find the remaining area and explain the subtraction.

22.4 [6 marks] A 7 m by 5 m garden needs a border around all sides except a 1 m gate. Border rolls cover 5 m and cost £8 each. Find border length, minimum rolls and total cost; check coverage.

Total: ____ /14. Worked solutions: page 112. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

23. Volume of cubes and cuboids

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

23.1 [2 marks] Find the volume of a cube with side 5 cm. Include the unit.

23.2 [2 marks] Find the volume of a cuboid 8 cm by 3 cm by 4 cm.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 23 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

23.3 [4 marks] A tank has internal dimensions 50 cm by 20 cm by 30 cm. Find its capacity in litres using 1,000 cm³ = 1 litre.

23.4 [6 marks] A rectangular container has internal dimensions 40 cm by 30 cm by 25 cm. It is filled to half its capacity. Water is added in full 3-litre jugs. Find its capacity, the initial water and the number of full jugs needed to fill it.

Total: ____ /14. Worked solutions: page 113. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

24. Drawing shapes, symmetry and angle size

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

24.1 [2 marks] State the number of lines of symmetry of a square and of a non-square rectangle.

24.2 [2 marks] Classify 35° and 135° as acute, right, obtuse or reflex.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 24 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

24.3 [4 marks] Draw a rectangle 6 cm by 3 cm. Draw all its symmetry lines. Use a ruler and label the lengths.

0.5 cm squares at 100% / actual-size printing

24.4 [6 marks] Draw an isosceles triangle with a 6 cm base, 4 cm perpendicular height and the top vertex directly above the base midpoint. Mark its symmetry line. Explain why each sloping side is equal to the other.

0.5 cm squares at 100% / actual-size printing

Total: ____ /14. Worked solutions: page 114. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

25. Plans, elevations and nets

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

25.1 [2 marks] A cuboid is 5 cm long, 3 cm wide and 2 cm high. State dimensions of its plan and front elevation when the 5 cm edge faces you.

25.2 [2 marks] A cube net needs how many equal squares? Explain why a strip of six in one straight row is not a valid cube net.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 25 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

25.3 [4 marks] A block model has front row heights 2, 1, 3 and back row heights 1, 4, 2. Find the cube count and the three front-elevation heights, from left to right.

0.5 cm squares at 100% / actual-size printing

25.4 [6 marks] For the same model, draw the occupied-cell plan and the front elevation on a unit grid. State the right elevation heights in front-to-back order and explain why counting only the elevation squares does not give the cube total.

0.5 cm squares at 100% / actual-size printing

Total: ____ /14. Worked solutions: page 115. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

26. Measuring angles and describing direction

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

26.1 [2 marks] Starting north, turn 135° clockwise. State the final compass direction and the number of 45° steps.

26.2 [2 marks] Starting south, turn 90° anticlockwise. Give the final direction and state whether 90° is a quarter or half turn.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 26 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

26.3 [4 marks] Using a protractor, draw an angle of 125°. Label the vertex and angle size, and classify the angle.

0.5 cm squares at 100% / actual-size printing

26.4 [6 marks] A route starts east, turns 90° clockwise, then 45° anticlockwise and then 180° clockwise. State the direction after each turn, final direction and total sizes of clockwise and anticlockwise turns. Use a compass sketch to check.

0.5 cm squares at 100% / actual-size printing

Total: ____ /14. Worked solutions: page 116. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

27. Tables, bar charts, pie charts and line graphs

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

27.1 [2 marks] A pictogram key says one full symbol represents 4 people. Find the count for 3 full symbols and a half symbol. Explain the half symbol.

27.2 [2 marks] A line graph joins readings 10°C at 09:00 and 16°C at 11:00 with a straight segment. Estimate the 10:00 reading and state why it is an estimate.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 27 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

27.3 [4 marks] Draw a bar chart of pet choices: cats 8, dogs 6, fish 4. Use the provided grid. Include a title, axis labels and a suitable equal-interval frequency scale.

0.5 cm squares at 100% / actual-size printing

27.4 [6 marks] A travel survey has walk 12, bus 6 and cycle 6. Find the total and sector angles, then construct a labelled pie chart with a protractor. Explain one comparison.

0.5 cm squares at 100% / actual-size printing

Total: ____ /14. Worked solutions: page 117. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

28. Grouping discrete data

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

28.1 [2 marks] Group 1, 4, 4, 6, 8 into classes 0-4 and 5-9. Give both frequencies.

28.2 [2 marks] Complete the missing class in 0-9, 10-19, ____, 30-39. Explain why 19 belongs in only one class.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 28 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

28.3 [4 marks] Group 2, 3, 7, 8, 8, 11, 14, 16, 18 into 0-4, 5-9, 10-14 and 15-19. Check your frequency total.

28.4 [6 marks] Use data 0, 1, 4, 5, 5, 7, 9, 10, 12, 14, 14, 18. Make a grouped frequency table with classes 0-4, 5-9, 10-14 and 15-19. Draw a separated-bar frequency chart and identify the largest class.

0.5 cm squares at 100% / actual-size printing

Total: ____ /14. Worked solutions: page 118. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

29. Mean and range

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

29.1 [2 marks] Find mean and range of 3, 5, 8, 8.

29.2 [2 marks] Find mean of 0, 6, 9. Explain whether zero is included in the count.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 29 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

29.3 [4 marks] Delivery times are 12, 14, 9, 17 and 13 minutes. Find mean and range, with units.

29.4 [6 marks] Team A times are 6, 8, 10, 12 minutes. Team B times are 8, 9, 9, 10 minutes. Compare their means and ranges. Which team is more consistent by range? Explain whether it has the lower mean.

Total: ____ /14. Worked solutions: page 119. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

30. The probability scale

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

30.1 [2 marks] Place 0, 1/2 and 1 on a probability scale. Give the word for 1/2.

30.2 [2 marks] Which is more likely, probability 1/4 or 3/4? Explain.

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 30 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

30.3 [4 marks] An event is assigned probability 1.2. Explain why this is invalid. Classify probabilities 0, 0.2 and 1 using likelihood words.

30.4 [6 marks] Four events have probabilities A 0.1, B 0.5, C 0.8 and D 1. Draw and label their positions on a 0-to-1 scale. Order least to most likely and explain why C is not guaranteed on the next attempt.

0.5 cm squares at 100% / actual-size printing

Total: ____ /14. Worked solutions: page 120. Use extra labelled paper if needed.

TOPIC PRACTICE • PART A • 4 MARKS

31. Simple events and equally likely outcomes

No calculator for these two questions. Show a method where requested. Use the matching learning-guide lesson if you need to learn the skill.

31.1 [2 marks] A fair die has faces 1 to 6. Find P(an even number) as a simplest fraction. List the favourable faces.

31.2 [2 marks] A bag has 5 blue and 7 yellow identical counters. Find P(blue) and P(not blue).

BEFORE YOU CONTINUE

Check place value, signs and units. Do not look at the solutions until you have completed Part B.

TOPIC 31 • PART B • 10 MARKS

Apply the maths in a situation

Calculator permitted. Use a ruler or protractor for constructions. Explain decisions with figures.

31.3 [4 marks] An equal-sector spinner has labels A,A,B,B,B,C,C,C,C,C. Find P(B), P(C) and explain why P(C) is greater.

31.4 [6 marks] A box contains 6 red, 9 green and 5 white identical tokens. One token is picked at random. Find P(red), P(not white), and P(red or white), each as a simplest fraction. Check that the three separate-colour probabilities sum to 1.

Total: ____ /14. Worked solutions: page 121. Use extra labelled paper if needed.

MIXED-TOPIC PRACTICE • 10 MARKS • CALCULATOR PERMITTED

Challenge 1: Community meal

INFORMATION

A meal serves 36 people. Each person needs 250 ml of soup. Soup comes in 2-litre cartons at £3.40 each. A hall is hired from 11:20 to 14:05.

a [3 marks] Find total soup needed in litres.

b [4 marks] Find minimum cartons and total soup cost. Explain rounding.

c [3 marks] Find the hall hire duration and express it in minutes.

Solutions: page 122. Score: ____ /10.

MIXED-TOPIC PRACTICE • 10 MARKS • CALCULATOR PERMITTED

Challenge 2: Repair workshop

INFORMATION

A rectangular workspace measures 8 m by 6 m. A fixed 2 m by 2 m store occupies one corner. Floor covering costs £9 per m² for the remaining area, with no waste allowance. Five daily repair counts are 7,11,8,9,10.

a [3 marks] Find the area requiring new covering.

b [4 marks] Find the covering cost. Is a £400 budget enough? State the difference.

c [3 marks] Find mean daily repairs and range.

Solutions: page 122. Score: ____ /10.

MIXED-TOPIC PRACTICE • 10 MARKS • CALCULATOR PERMITTED

Challenge 3: Travel group

INFORMATION

A group of 60 people chooses walking, bus or cycling. Two fifths walk. Of the rest, 25% cycle and the others use the bus. Bus tickets cost £4 each.

a [3 marks] Find how many walk and how many remain.

b [4 marks] Find the cycle count, bus count and total bus fare.

c [3 marks] Find the probability that one randomly selected group member walks. Give a simplest fraction and explain the denominator.

Solutions: page 123. Score: ____ /10.

MIXED-TOPIC PRACTICE • 10 MARKS • CALCULATOR PERMITTED

Challenge 4: Market stock

INFORMATION

A trader buys 8 boxes of 18 candles. Each candle costs £1.25. A supplier takes 10% off the goods total and then adds £8 delivery. The trader has £175.

a [3 marks] Find candle count and undiscounted goods cost.

b [4 marks] Find delivered cost and decide whether the money is enough.

c [3 marks] Estimate the undiscounted cost using 150 candles at £1.20. Compare with your exact cost.

Solutions: page 123. Score: ____ /10.

MIXED-TOPIC PRACTICE • 10 MARKS • CALCULATOR PERMITTED

Challenge 5: Storage plan

INFORMATION

A 6 m by 4 m room is drawn at 1 cm for 1 m. A container has internal dimensions 50 cm by 40 cm by 30 cm. Use 1,000 cm³ = 1 litre.

a [3 marks] State the plan dimensions and draw the room to scale.

0.5 cm squares at 100% / actual-size printing

b [4 marks] Find container volume in cm³ and litres.

c [3 marks] The container is one quarter full. How many litres are needed to fill it?

Solutions: page 124. Score: ____ /10.

MIXED-TOPIC PRACTICE • 10 MARKS • CALCULATOR PERMITTED

Challenge 6: Activity survey

INFORMATION

Twenty people choose art 10, music 5 and sport 5. The session fee is £16 each. The organiser reduces the fee by 15% for everyone.

a [3 marks] Find pie-chart sector angles for the three choices.

b [4 marks] Find reduced fee per person and total fee income.

c [3 marks] Find P(not art) for a random person and check the three choice probabilities total 1.

Solutions: page 124. Score: ____ /10.

NON-CALCULATOR • 15 MARKS • START HERE

Mock A: Section A

PRACTICE INSTRUCTIONS

30 minutes for both Section A pages. No calculator or notes. Answer all five questions; each contains three one-mark parts. Show useful working. This is an original practice paper, not a board paper.

1 [3 marks] a) Write 407,026 in words. b) Order -8,3,-2,0, smallest first. c) Calculate 8.46×100.

2 [3 marks] a) Calculate 17^2. b) Calculate 40-6×5. c) Calculate 252÷9.

3 [3 marks] a) Find 3/4 of 56. b) Write 0.4 as a simplest fraction. c) Order 1.205,1.25,1.025, smallest first.

NON-CALCULATOR • 15 MARKS • CONTINUED

Mock A: Section A

4 [3 marks] a) Calculate 8.7-2.85. b) Round 6.748 to 2 decimal places. c) Find 15% of 200.

5 [3 marks] a) Convert 1.8 kg to grams. b) Find range of 4,9,7,12. c) Find P(rolling above 4) on a fair six-sided die, as a simplest fraction.

END OF SECTION A

Put these pages aside before beginning Section B. Record your score only after the whole practice paper has been attempted.

SECTION B • CALCULATOR PERMITTED • QUESTION 6 • 9 MARKS

Mock A: Garden supplies

90 minutes for all five Section B pages. No notes. Use pencil and measuring tools for drawings. State units and support decisions. Suggested timings belong to this workbook.

6 [9 marks] A rectangular garden is 9 m by 4 m. Border is needed around all sides except a 2 m gate. It is sold in 5 m rolls at £7.50 each. The garden also needs 3/4 litre of feed per m². Feed comes in 5-litre bottles.
(a) Find border length and minimum rolls. [3]
(b) Find border cost and change from £40. [2]
(c) Find feed required, minimum bottles and spare feed. [4]

SECTION B • CALCULATOR PERMITTED • QUESTION 7 • 9 MARKS

Mock A: Learning day

7 [9 marks] There are 64 learners. Three eighths attend morning; the others attend afternoon. Each afternoon table seats 6. Hiring a table costs £8. The day runs 09:25-15:10, with a 40-minute break.
(a) Find both group sizes and minimum afternoon tables. [4]
(b) Find afternoon table cost. [2]
(c) Find teaching time excluding the break, in hours and minutes and in minutes. [3]

SECTION B • CALCULATOR PERMITTED • QUESTION 8 • 9 MARKS

Mock A: Buying a projector

8 [9 marks] A projector costs £360 before a 25% discount. Delivery adds £12. Another seller charges £290 delivered. A group has saved £250 at an invented 10% annual simple interest for 2 years.
(a) Find the first delivered price and the cheaper offer, with saving. [4]
(b) Find the savings balance after 2 years. [3]
(c) Decide whether that balance covers the cheaper offer and state money left. [2]

SECTION B • CALCULATOR PERMITTED • QUESTION 9 • 9 MARKS

Mock A: Activity data

9 [9 marks] Five session attendances are 16,20,12,18,14. A separate preference survey records art 12, music 6 and sport 6.
(a) Find the mean attendance and range. [3]
(b) On a grid, draw a bar chart for the preference survey with labels, title and equal-interval frequency scale. [4]
(c) Find P(music) for a randomly selected survey respondent and compare it with P(art). [2]

0.5 cm squares at 100% / actual-size printing

SECTION B • CALCULATOR PERMITTED • QUESTION 10 • 9 MARKS

Mock A: Packing and a plan

10 [9 marks] A tank has internal dimensions 60 cm by 25 cm by 40 cm. A rectangular store is 7 m by 5 m and is drawn using 1 cm for 1 m.
(a) Find tank capacity in litres, using 1,000 cm^3 = 1 litre. [3]
(b) The tank is one third full. Find litres needed to fill it and number of full 5-litre jugs required. [3]
(c) Draw a labelled scale plan of the store and mark north at the top. [3]

0.5 cm squares at 100% / actual-size printing

End of paper. Check answers and working before using the solutions. Mock total: ____ /60.

NON-CALCULATOR • 15 MARKS • START HERE

Mock B: Section A

PRACTICE INSTRUCTIONS

30 minutes for both Section A pages. No calculator or notes. Answer all five questions; each contains three one-mark parts. Show useful working. This is an original practice paper, not a board paper.

1 [3 marks] a) Write 830,015 in words. b) Which is greater: -4 or -11? c) Calculate $0.608 \times 1{,}000$.

2 [3 marks] a) Calculate 19^2. b) Calculate $54 \div 9 + 7$. c) Calculate 36×7.

3 [3 marks] a) Which is greater: 5/8 or 1/2? b) Write 25% as a simplest fraction. c) Order 2.09,2.009,2.19, smallest first.

NON-CALCULATOR • 15 MARKS • CONTINUED

Mock B: Section A

4 [3 marks] a) Calculate 6.25+3.8. b) Round 8.264 to 1 decimal place. c) Find 35% of 100.

5 [3 marks] a) Convert 2 h 15 min to minutes. b) Find mean of 2,6,10. c) A bag has 3 red and 5 blue identical counters. Find P(red).

END OF SECTION A

Put these pages aside before beginning Section B. Record your score only after the whole practice paper has been attempted.

SECTION B • CALCULATOR PERMITTED • QUESTION 6 • 9 MARKS

Mock B: Volunteer kits

90 minutes for all five Section B pages. No notes. Use pencil and measuring tools for drawings. State units and support decisions. Suggested timings belong to this workbook.

6 [9 marks] A team has 75 volunteers. Two fifths need small kits; the rest need large kits. Small kits cost £4.80 each and large kits cost £6.20 each. Delivery costs £15. The budget is £450.

(a) Find both kit counts. [3]

(b) Find total delivered cost and decide whether the budget is enough, stating the difference. [4]

(c) Check the total kit count and check one kit cost with an estimate. [2]

SECTION B • CALCULATOR PERMITTED • QUESTION 7 • 9 MARKS

Mock B: Museum visit

7 [9 marks] Two route segments measure 3.2 cm and 4.8 cm on a map with 1 cm representing 250 m. The group leaves at 10:35 and arrives at 11:20. Tickets are normally £16, with 15% off for each of 25 people.
(a) Find route distance in m and km. [3]
(b) Find journey time in minutes. [2]
(c) Find reduced ticket price and total for the group. [4]

SECTION B • CALCULATOR PERMITTED • QUESTION 8 • 9 MARKS

Mock B: Making a display

8 [9 marks] A 12 m by 7 m rectangular floor has a 4 m by 2 m corner removed. Floor tiles cover 2 m² per pack and cost £11 per pack. Allow no waste.
(a) Find the floor area to cover. [3]
(b) Find packs and cost. [3]
(c) An 18-by-18 square photo board is compared with a 16-by-16 board. Find both photo counts and the difference. [3]

SECTION B • CALCULATOR PERMITTED • QUESTION 9 • 9 MARKS

Mock B: Survey and stock

9 [9 marks] A survey of 32 people records apples 16, pears 8 and oranges 8. Daily crate counts are 7,11,9,13.
(a) Find the three pie-chart sector angles and construct a labelled chart. [5]
(b) Find mean daily crates and range. [3]
(c) Find P(not pears) for a random survey respondent. [1]

0.5 cm squares at 100% / actual-size printing

SECTION B • CALCULATOR PERMITTED • QUESTION 10 • 9 MARKS

Mock B: Funding and storage

10 [9 marks] A project saves £600 at an invented 5% annual simple interest for 2 years. A cupboard normally costs £700 and has 10% off, with £20 delivery. Its internal dimensions are 80 cm by 50 cm by 100 cm.
(a) Find final savings. [3]
(b) Find delivered cupboard price and decide whether the savings cover it, with the difference. [4]
(c) Find internal volume in cm^3 and litres, using 1,000 cm^3 = 1 litre. [2]

0.5 cm squares at 100% / actual-size printing

End of paper. Check answers and working before using the solutions. Mock total: ____ /60.

WORKED SOLUTIONS • 14 MARKS

01. Whole numbers to one million

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 1.1 • 2 marks

Six hundred and twenty thousand, four hundred and seven (1). The 2 represents 20,000 (1).

Question 1.2 • 2 marks

308,090; 308,900; 380,009; 380,090 (1). At the hundreds place 0 is less than 9 when the larger places match, so 308,090 is below 308,900 (1).

Question 1.3 • 4 marks

Choose subtraction, 429,380-418,765 (1). Increase 10,615 visitors (1). Inverse check 418,765+10,615 (1) = 429,380 (1).

Question 1.4 • 6 marks

After delivery 165,480+28,750 = 194,230 (1). Subtract 47,965 (1) to get 146,265 labels (1). Enough because 146,265 exceeds 145,000 (1). Surplus 1,265 labels (1). Check 146,265+47,965 = 194,230, recovering the pre-use stock (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

02. Positive and negative numbers

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 2.1 • 2 marks

Order -12, -3, 0, 5 (1). Zero itself is closest to zero (1).

Question 2.2 • 2 marks

Rise 15°C (1). It rises 9 degrees to zero and another 6 degrees to 6°C (1).

Question 2.3 • 4 marks

-46+85 = 39 (1). 39-27 = 12 (1). Final balance £12 (1), above zero and therefore not overdrawn (1).

Question 2.4 • 6 marks

After warming -7+11 = 4°C (1). After cooling 4-9 = -5°C (1). Final temperature -5°C (1). $-8 \leq -5 \leq -4$, so within the safe range (1). Difference from lower limit -5-(-8) = 3°C (1). A number-line or equivalent staged check confirms the changes (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

03. Multiplying and dividing by 10, 100 and 1,000

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 3.1 • 2 marks

608 (1); 4.27 (1).

Question 3.2 • 2 marks

935 (1); 5.8 (1).

Question 3.3 • 4 marks

0.048×100 (1) = 4.8 kg (1). Multiply by 1,000 (1) = 4,800 g (1).

Question 3.4 • 6 marks

Per batch 100×0.036 = 3.6 m (1). Ten batches 3.6×10 = 36 m (1). Divide 36 by 50 (1) to get 0.72 rolls (1). Buy 1 whole roll (1), because one 50 m roll covers 36 m, leaving 14 m (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

04. Multiplication and division facts

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 4.1 • 2 marks

40×6+7×6 (1) = 240+42 = 282 (1).

Question 4.2 • 2 marks

28 (1); 28×8 = 224 (1).

Question 4.3 • 4 marks

157÷12 gives 13 complete boxes (1), remainder 1 folder (1). Need 14 boxes (1) because the remaining folder also needs a box (1).

Question 4.4 • 6 marks

18×24 = 432 places (1). 432÷25 = 17 remainder 7 or 17.28 (1). Need 18 packs (1). 18×£7 = £126 (1). Capacity 18×25 = 450 (1), enough for 432, with 18 cards spare (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

05. Simple word formulae

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 5.1 • 2 marks

4×£6 = £24 (1); add £7 to get £31 (1).

Question 5.2 • 2 marks

6×3 = 18 (1); 18+4 = 22 points (1).

Question 5.3 • 4 marks

3×£12 = £36 (1). Add £18 to get £54 (1). £60-£54 (1) = £6 change (1).

Question 5.4 • 6 marks

47+8 = 55 seats (1). 55÷6 = 9 remainder 1 (1). Need 10 tables (1). 10×£9 = £90 (1). 10×6 = 60 seats (1), enough for 55 with 5 spare; 9 tables seat only 54 (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

06. Squares of numbers

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 6.1 • 2 marks

144 (1); 324 (1).

Question 6.2 • 2 marks

They doubled 15 rather than multiplying it by itself (1). 15×15 = 225 (1).

Question 6.3 • 4 marks

$17^2 = 289$ (1). $15^2 = 225$ (1). 289-225 (1) = 64 more photographs (1).

Question 6.4 • 6 marks

$16^2 = 256$ (1). $14^2 = 196$ (1). Total 452 spaces (1). 452 exceeds 440, so sufficient (1). Spare 12 spaces (1). Check 452-196 = 256 or 440+12 = 452 (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

07. Order of operations

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 7.1 • 2 marks

6 (1); 156 (1).

Question 7.2 • 2 marks

16, using left to right (1); 14 (1).

Question 7.3 • 4 marks

4×£8 = £32 (1). £60-£32+£5 = £33 (1). Multiplication represents four £8 amounts (1); subtracting 4 first would change that grouping and the bill (1).

Question 7.4 • 6 marks

Expression £150-(6×£14+3×£5) or equivalent (1). Passes £84 (1); maps £15 (1). Total £99 (1). £51 remains (1). Check £84+£15+£51 = £150 (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

08. Common fractions and mixed numbers

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 8.1 • 2 marks

5/6 = 10/12 and 3/4 = 9/12 (1); 5/6 is larger (1).

Question 8.2 • 2 marks

2 1/4 (1); 7/3 (1).

Question 8.3 • 4 marks

7/8 = 21/24 (1). 5/6 = 20/24 (1). First container has more (1), because 21 equal parts exceed 20 out of the same whole (1).

Question 8.4 • 6 marks

Use a common denominator of 120 (1). 3/5 = 72/120 and 5/8 = 75/120 (1). 2/3 = 80/120 (1). Order 3/5, 5/8, 2/3 (1). Claim incorrect (1): 2/3 is fullest because 80/120 exceeds 75/120 (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

09. Fractions of quantities

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 9.1 • 2 marks

84÷7 = 12 (1); 12×3 = 36 (1).

Question 9.2 • 2 marks

64÷8 = 8 (1); 8×5 = 40 (1).

Question 9.3 • 4 marks

96÷6 = 16 (1). 16×5 = 80 fiction books (1). 96-80 (1) = 16 non-fiction books (1).

Question 9.4 • 6 marks

72÷8 = 9 (1). Morning 9×3 = 27 (1). Afternoon 72-27 = 45 (1). 45÷10 = 4.5 (1), so need 5 minibuses (1). They seat 50, enough for 45; 4 seat only 40 (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

10. Decimals to three decimal places

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 10.1 • 2 marks

Use equivalent place values 3.082, 3.280, 3.208 (1). Order 3.082, 3.208, 3.28 (1).

Question 10.2 • 2 marks

6.400 (1); 0.04 or four hundredths (1).

Question 10.3 • 4 marks

Compare 1.095, 1.150, 1.109 using three places (1). 1.095 is too short (1). Select 1.109 m (1), the smaller of the two lengths at least 1.100 m (1).

Question 10.4 • 6 marks

Accepted 0.754, 0.775, 0.780 m in order (2: correct selection 1, order 1). Reject count 2 (1). 0.740 < 0.745 so rejected (1). 0.780 equals the upper limit and inclusive means accepted (1). 0.708 < 0.745 so also rejected (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

11. Decimal calculations to two decimal places

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 11.1 • 2 marks

Align decimal places or equivalent decomposition (1); 9.23 (1).

Question 11.2 • 2 marks

Use 9.20-3.67 with aligned places (1); 5.53 (1).

Question 11.3 • 4 marks

4×£1.85 (1) = £7.40 (1). £10-£7.40 (1) = £2.60 (1).

Question 11.4 • 6 marks

Coffee 8×£6.75 = £54 (1). Milk 3×£1.40 = £4.20 (1). Total £58.20 (1). Enough because £58.20 < £60 (1). £1.80 remains (1). Estimate, inverse or total check, such as £58.20+£1.80 = £60 (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

12. Rounding for a stated purpose

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 12.1 • 2 marks

7.4 (1); 7.39 (1).

Question 12.2 • 2 marks

24,700 (1); 25,000 (1).

Question 12.3 • 4 marks

17.6÷3 = 5.8666... (1). Keep hundredths (1). Next digit is 6, so increase the hundredths digit (1). Result 5.87 (1).

Question 12.4 • 6 marks

18.5÷0.6 = 30.833... (1). Rounded to 1 dp: 30.8 (1). Only 30 complete badges (1). Use 30×0.6 = 18 m (1), leaving 0.5 m (1). A fraction of a badge cannot be counted as a complete badge (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

13. Reading and comparing percentages

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 13.1 • 2 marks

9%, 45%, 65%, 70% (1); clear least-to-greatest interpretation or comparison, for example 9 < 45 (1).

Question 13.2 • 2 marks

Bus share is larger (1); 40-25 = 15 percentage points (1).

Question 13.3 • 4 marks

35+45+20 (1) = 100% (1). Coffee is largest and water smallest (1). Difference 25 percentage points (1).

Question 13.4 • 6 marks

X: 80% of 20 = 16 (2: method 1, result 1). Y: 65% of 40 = 26 (2: method 1, result 1). X has higher share, 80% > 65% (1). Y has more completers, 26 > 16 (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

14. Percentages of quantities and simple changes

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 14.1 • 2 marks

10% = £14 and 5% = £7, or equivalent (1); 30%+5% = £42+£7 = £49 (1).

Question 14.2 • 2 marks

Increase 12 (1); total 92 (1).

Question 14.3 • 4 marks

25% as one quarter or equivalent method (1). Reduction £60 (1). £240-£60 (1) = £180 (1).

Question 14.4 • 6 marks

10% = 16 or valid percentage method (1). Increase 32 members (1). New membership 192 (1). Packs only for 32 new members (1). 32×£4 = £128 (1). Check 192-160 = 32 or equivalent (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

15. Estimation with fractions and decimals

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 15.1 • 2 marks

Use 40×£5 (1); estimate £200 (1).

Question 15.2 • 2 marks

Use 200 (1); 3/4 of 200 = 150 (1).

Question 15.3 • 4 marks

Use 20×£4 (1) ≈ £80 (1). Claimed answer is about ten times too large, so unreasonable (1). Exact cost £82.95 (1).

Question 15.4 • 6 marks

Use 30×£5 (1) ≈ £150 (1). Exact 31×£4.80 (1) = £148.80 (1). Enough, with £1.20 left (1). Estimate is on the budget boundary, so exact calculation is needed to settle the decision (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

16. Equivalent fractions, decimals and percentages

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 16.1 • 2 marks

0.75 (1); 75% (1).

Question 16.2 • 2 marks

1/5 (1); 20% (1).

Question 16.3 • 4 marks

35% (1). 35/100 = 7/20 (1). 0.35×80 or equivalent (1) = 28 people (1).

Question 16.4 • 6 marks

A: 3/5 = 60% (1); count 60 (1). B: 65% > 60% (1); count 0.65×80 = 52 (1). B has greater reusable share (1), but A has more reusable crates, 60 > 52 (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

17. Simple ratio and direct proportion

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 17.1 • 2 marks

Divide both by 6 (1); 3:5 (1).

Question 17.2 • 2 marks

One costs £2.50 (1); ten cost £25 (1).

Question 17.3 • 4 marks

7 parts, each £18 (1). Shares £36 (1) and £90 (1). £36+£90 = £126 (1).

Question 17.4 • 6 marks

3 litres = 3,000 ml (1). Five parts, one part 600 ml (1). Concentrate 600 ml (1); water 2,400 ml (1). Need 2 bottles giving 1,000 ml (1); 400 ml concentrate remains (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

18. Simple interest

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 18.1 • 2 marks

10% = £70 then halve, or equivalent (1); £35 interest (1).

Question 18.2 • 2 marks

Annual interest £30 (1); total interest £120 (1).

Question 18.3 • 4 marks

Annual interest £60 (1). Two years £120 (1). Add original £400 (1) = £520 balance (1).

Question 18.4 • 6 marks

Annual interest £40 (1). Total interest 3×£40 = £120 (1). Final balance £920 (1). Not enough for £950 (1); shortfall £30 (1). Each year's interest uses the original £800, so the annual interest stays £40 (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

19. Discounts and sale prices

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 19.1 • 2 marks

Saving £15 (1); price £60 (1).

Question 19.2 • 2 marks

30%+5% = £54+£9 = £63 discount (1); £117 sale price (1).

Question 19.3 • 4 marks

Discount £30 (1), A delivered £90+£8 = £98 (1). A cheaper (1) by £3 (1).

Question 19.4 • 6 marks

Goods 6×£24 = £144 (1). Discount 15% = £21.60 (1). Reduced goods £122.40 (1). Delivered £131.40 (1). First supplier is cheaper by £3.60 (1). Check £122.40+£21.60 = £144 or equivalent (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

20. Converting everyday units

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 20.1 • 2 marks

2,750 ml (1); 4,200 g (1).

Question 20.2 • 2 marks

160 minutes (1); 36 inches (1).

Question 20.3 • 4 marks

15 minutes to 15:00 (1), then 2 hours 10 minutes (1). Total 2 h 25 min (1) = 145 minutes (1).

Question 20.4 • 6 marks

To midnight 2 h 20 min (1), then 1 h 15 min: total 3 h 35 min (1). Subtract break to get 3 h 10 min (1). This is 3+10/60 hours (1). Pay £38 (1). Check 190 paid minutes+25 break = 215 total minutes (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

21. Simple map and drawing scales

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 21.1 • 2 marks

3.5×400 (1) = 1,400 m or 1.4 km (1).

Question 21.2 • 2 marks

9÷2 (1) = 4.5 cm (1).

Question 21.3 • 4 marks

Total 7.5 cm (1). 7.5×200 (1) = 1,500 m (1) = 1.5 km (1).

Question 21.4 • 6 marks

Room 8 cm by 5 cm (2: one per correct dimension). Table 2 cm by 1 cm (2: one per dimension). Long edge against the wall, centred with 3 cm to either end (1). Correct real-dimension labels and 1 cm:1 m scale (1). Workbook tolerance ±1 mm in drawing lengths.

For model diagrams and construction criteria, see the visual guides on pages 133-138. Exact dimensions and labels in the solution take priority over schematic display size.

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

22. Perimeter, area and composite rectangles

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 22.1 • 2 marks

Perimeter 30 m (1); area 44 m² (1).

Question 22.2 • 2 marks

54÷6 (1) = 9 cm (1).

Question 22.3 • 4 marks

Large area 70 m² (1), removed area 12 m² (1). Remaining 58 m² (1), because the removed rectangle is no longer part of the covered surface (1).

Question 22.4 • 6 marks

Full perimeter 2×(7+5) = 24 m (1). Subtract gate: 23 m (1). 23÷5 = 4.6 (1), need 5 rolls (1). Cost £40 (1). 25 m covers 23 m with 2 m spare; 4 rolls only cover 20 m (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

23. Volume of cubes and cuboids

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 23.1 • 2 marks

5×5×5 (1) = 125 cm³ (1).

Question 23.2 • 2 marks

8×3×4 (1) = 96 cm³ (1).

Question 23.3 • 4 marks

50×20×30 (1) = 30,000 cm³ (1). Divide by 1,000 (1) = 30 litres (1).

Question 23.4 • 6 marks

Volume 40×30×25 = 30,000 cm³ (2: method 1, result 1). Capacity 30 litres (1). Half full means 15 litres already present (1). Another 15 litres needed (1), requiring 15÷3 = 5 full jugs (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

24. Drawing shapes, symmetry and angle size

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 24.1 • 2 marks

Square 4 (1); non-square rectangle 2 (1).

Question 24.2 • 2 marks

35° acute (1); 135° obtuse (1).

Question 24.3 • 4 marks

6 cm dimension (1), 3 cm dimension with right-angled rectangle (1). Two centre lines, parallel to the pairs of sides (1). Correct labels and no extra symmetry lines (1). Length tolerance ±1 mm.

Question 24.4 • 6 marks

Base 6 cm (1). Midpoint 3 cm from either end (1). Vertex 4 cm perpendicularly above it (1). Join to both base ends (1). One symmetry line from top vertex to base midpoint (1). The two halves reflect exactly, so corresponding sloping sides are equal (1). Tolerance ±1 mm and ±2° for intended perpendicular.

For model diagrams and construction criteria, see the visual guides on pages 133-138. Exact dimensions and labels in the solution take priority over schematic display size.

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

25. Plans, elevations and nets

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 25.1 • 2 marks

Plan 5 cm by 3 cm (1); front elevation 5 cm by 2 cm (1).

Question 25.2 • 2 marks

Six equal squares (1). A straight strip cannot close all six faces without overlap or missing end faces when folded around a cube (1).

Question 25.3 • 4 marks

Front row total 6 (1), back row total 7 (1), cube count 13 (1). Front elevation heights 2, 4, 3, taking column maxima (1).

Question 25.4 • 6 marks

Plan: 3 columns by 2 rows, all six occupied (1). Front heights 2, 4, 3 (2: correct first/last columns 1, central height 1). Right heights 3 then 4 (1). Elevations hide cubes behind others (1); the total 13 requires summing all stack heights (1).

For model diagrams and construction criteria, see the visual guides on pages 133-138. Exact dimensions and labels in the solution take priority over schematic display size.

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

26. Measuring angles and describing direction

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 26.1 • 2 marks

South-east (1); three 45° steps (1).

Question 26.2 • 2 marks

East (1); quarter turn (1).

Question 26.3 • 4 marks

First arm and vertex identified (1), second arm at 125° within ±2° (1), 125° label (1), obtuse (1).

Question 26.4 • 6 marks

After first turn south (1). After second south-east (1). After third north-west (1). Final north-west clearly stated (1). Clockwise turns total 270° (1); anticlockwise total 45°, with a consistent compass sketch or equivalent check (1).

For model diagrams and construction criteria, see the visual guides on pages 133-138. Exact dimensions and labels in the solution take priority over schematic display size.

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

27. Tables, bar charts, pie charts and line graphs

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 27.1 • 2 marks

3×4+2 = 14 people (1); half symbol represents 2 people (1).

Question 27.2 • 2 marks

13°C (1); it lies between recorded readings under the straight-line model, not a direct observation (1).

Question 27.3 • 4 marks

Suitable scale from zero and axis labels (1). Correct heights 8,6,4 (2: all three 2, two correct 1). Title, category labels and separated equal-width bars (1).

Question 27.4 • 6 marks

Total 24 (1). Angles walk 180°, bus 90°, cycle 90° (2: correct method 1, all values 1). Accurate sectors within ±2° (1). Labels/key and title (1). Valid comparison, for example walking has twice the bus count (1).

For model diagrams and construction criteria, see the visual guides on pages 133-138. Exact dimensions and labels in the solution take priority over schematic display size.

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

28. Grouping discrete data

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 28.1 • 2 marks

0-4: 3 (1); 5-9: 2 (1).

Question 28.2 • 2 marks

20-29 (1); 19 falls in 10-19 and not any other class (1).

Question 28.3 • 4 marks

Frequencies 2,3,2,2 (2: all correct 2, two/three correct 1). Total 9 (1), matching nine observations (1).

Question 28.4 • 6 marks

Frequencies 3,4,4,1 (2: all correct 2, two/three 1). Frequency total 12 (1). Suitable equal-interval scale and class labels (1). Correct bar heights (1). Joint largest classes 5-9 and 10-14, both frequency 4 (1).

For model diagrams and construction criteria, see the visual guides on pages 133-138. Exact dimensions and labels in the solution take priority over schematic display size.

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

29. Mean and range

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 29.1 • 2 marks

Mean 24÷4 = 6 (1); range 8-3 = 5 (1).

Question 29.2 • 2 marks

Mean 15÷3 = 5 (1); zero is an observation, so included among the three values (1).

Question 29.3 • 4 marks

Total 65 (1), mean 65÷5 = 13 minutes (1). Maximum 17 and minimum 9 (1), range 8 minutes (1).

Question 29.4 • 6 marks

A total 36, mean 9 min (1). B total 36, mean 9 min (1). A range 6 min (1); B range 2 min (1). B more consistent by smaller range (1). It does not have a lower mean: both are 9 min (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

30. The probability scale

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 30.1 • 2 marks

Correct endpoints 0 and 1, with 1/2 midway (1); even chance (1).

Question 30.2 • 2 marks

3/4 (1), because it is closer to 1 or larger on the probability scale (1).

Question 30.3 • 4 marks

Probabilities cannot exceed 1 (1). 0 impossible (1), 0.2 unlikely (1), 1 certain (1).

Question 30.4 • 6 marks

Correct endpoints and even spacing (1). A and B correctly positioned (1); C and D correctly positioned (1). Order A,B,C,D (1). C is likely but not certain (1), since 0.8 is less than 1, so it may fail next time (1).

For model diagrams and construction criteria, see the visual guides on pages 133-138. Exact dimensions and labels in the solution take priority over schematic display size.

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

WORKED SOLUTIONS • 14 MARKS

31. Simple events and equally likely outcomes

Original workbook marking guidance. Brackets show marks for the preceding evidence; award each stage once. Equivalent correct methods are accepted. Do not treat these allocations as an official board mark scheme.

Question 31.1 • 2 marks

2,4,6 (1); 3/6 = 1/2 (1).

Question 31.2 • 2 marks

5/12 (1); 7/12 (1).

Question 31.3 • 4 marks

10 sectors (1). P(B) = 3/10 (1). P(C) = 5/10 = 1/2 (1). C occupies more equally likely sectors, 5 rather than 3 (1).

Question 31.4 • 6 marks

Total 20 (1). P(red) = 6/20 = 3/10 (1). P(not white) = 15/20 = 3/4 (1). P(red or white) = 11/20 (1). Colour probabilities 6/20,9/20,5/20 (1) sum to 20/20 = 1 (1).

AFTER MARKING

My score: ____ /14
One method I can now explain: _____
One error and its repair: _____
Retry date: ____

CHALLENGES 1 AND 2

Mixed-challenge solutions

1 • Community meal

a. 36×250 = 9,000 ml (1). Divide by 1,000 (1) = 9 litres (1).

b. 9÷2 = 4.5 (1); need 5 cartons (1). 5×£3.40 = £17 (1). Four cartons give only 8 litres, so rounding down would be insufficient (1).

c. 2 h 45 min (1). 2×60+45 (1) = 165 minutes (1).

2 • Repair workshop

a. Workspace 48 m² (1), store 4 m² (1), remaining 44 m² (1).

b. 44×£9 (1) = £396 (1). Budget sufficient (1), with £4 left (1).

c. Total 45 (1), mean 9 repairs/day (1), range 11-7 = 4 repairs (1).

Accept equivalent correct methods. For Challenge 5(a), use a ruler: 6 cm by 4 cm at the given scale. Diagram tolerance ±1 mm.

CHALLENGES 3 AND 4

Mixed-challenge solutions

3 • Travel group

a. 60÷5×2 (1) = 24 walk (1). 36 remain (1).

b. 25% of 36 = 9 cycle (1). 36-9 = 27 bus (1). 27×£4 (1) = £108 (1).

c. 24/60 (1) = 2/5 (1). Denominator 60 counts every equally likely person in the group (1).

4 • Market stock

a. 8×18 = 144 candles (1). 144×£1.25 (1) = £180 (1).

b. 10% = £18 (1); reduced goods £162 (1); delivered £170 (1). Enough, £5 spare (1).

c. 150×£1.20 (1) = £180 (1). Matches the exact cost here; opposite adjustments happen to balance (1).

Accept equivalent correct methods. For Challenge 5(a), use a ruler: 6 cm by 4 cm at the given scale. Diagram tolerance ±1 mm.

CHALLENGES 5 AND 6

Mixed-challenge solutions

5 • Storage plan

a. 6 cm by 4 cm (1). Correct scaled rectangle within ±1 mm (1), real-dimension labels and scale (1).

b. 50×40×30 (1) = 60,000 cm³ (1). Divide by 1,000 (1) = 60 litres (1).

c. Quarter capacity 15 litres (1). 60-15 (1) = 45 litres needed (1).

6 • Activity survey

a. Art 180° (1), music 90° (1), sport 90° (1).

b. 15% of £16 = £2.40 (1), reduced fee £13.60 (1), 20×£13.60 (1) = £272 (1).

c. 10/20 = 1/2 (1). Choice probabilities 1/2,1/4,1/4 (1), sum 1 (1).

Accept equivalent correct methods. For Challenge 5(a), use a ruler: 6 cm by 4 cm at the given scale. Diagram tolerance ±1 mm.

WORKED SOLUTIONS • 15 MARKS

Mock A: Section A answers

Question 1 • 3 marks

a) Four hundred and seven thousand and twenty-six (1). b) -8,-2,0,3 (1). c) 846 (1).

Question 2 • 3 marks

a) 289 (1). b) 10 (1). c) 28 (1).

Question 3 • 3 marks

a) 42 (1). b) 2/5 (1). c) 1.025,1.205,1.25 (1).

Question 4 • 3 marks

a) 5.85 (1). b) 6.75 (1). c) 30 (1).

Question 5 • 3 marks

a) 1,800 g (1). b) 8 (1). c) 2/6 = 1/3 (1).

MARKING THE NON-CALCULATOR SECTION

Award one mark per correct part. Working is useful for diagnosing errors. Score: ____ /15. Do not convert this to an official pass decision.

ORIGINAL MARKING GUIDANCE • CALCULATOR SECTION

Mock A: Section B solutions

Question 6 • Garden supplies • 9 marks

a) Perimeter 26 m (1), border 24 m (1), 5 rolls (1). b) Cost £37.50 (1), change £2.50 (1). c) 36 m² area (1), 27 litres feed (1), 6 bottles (1), spare 3 litres (1).

Question 7 • Learning day • 9 marks

a) 64÷8 = 8 (1), morning 24 (1), afternoon 40 (1), 7 tables (1). b) 7×£8 (1) = £56 (1). c) Elapsed 5 h 45 min (1), teaching 5 h 5 min (1) = 305 minutes (1).

For drawings, use the stated dimensions, labels and checking criteria. Accept other valid mathematical routes. Award each stage once. These allocations are educational guidance rather than any board’s official rules.

ORIGINAL MARKING GUIDANCE • CALCULATOR SECTION

Mock A: Section B solutions

Question 8 • Buying a projector • 9 marks

a) Discount £90 (1), sale price £270 (1), delivered £282 (1), first seller cheaper by £8 (1). b) Annual interest £25 (1), total interest £50 (1), balance £300 (1). c) Enough because £300 > £282 (1), £18 left (1).

Question 9 • Activity data • 9 marks

a) Sum 80 (1), mean 16 (1), range 8 (1). b) Suitable frequency axis from zero and category labels (1), heights 12,6,6 (2: all 2, two 1), title and separated equal-width bars (1). c) P(music) = 6/24 = 1/4 (1), art is twice as likely with 12/24 = 1/2 (1).

For drawings, use the stated dimensions, labels and checking criteria. Accept other valid mathematical routes. Award each stage once. These allocations are educational guidance rather than any board’s official rules.

ORIGINAL MARKING GUIDANCE • CALCULATOR SECTION

Mock A: Section B solutions

Question 10 • Packing and a plan • 9 marks

a) 60×25×40 (1) = 60,000 cm³ (1) = 60 litres (1). b) Present 20 litres (1), needed 40 litres (1), 8 jugs (1). c) 7 cm by 5 cm rectangle within ±1 mm (2, one per dimension), real-length labels, scale and north arrow at top (1).

For drawings, use the stated dimensions, labels and checking criteria. Accept other valid mathematical routes. Award each stage once. These allocations are educational guidance rather than any board's official rules.

REVIEW YOUR RESULT

Section A: ____ /15 Section B: ____ /45
Total: ____ /60
Three topics to revisit: _____
There is no official pass boundary for this practice mock.

WORKED SOLUTIONS • 15 MARKS

Mock B: Section A answers

Question 1 • 3 marks

a) Eight hundred and thirty thousand and fifteen (1). b) -4 (1). c) 608 (1).

Question 2 • 3 marks

a) 361 (1). b) 13 (1). c) 252 (1).

Question 3 • 3 marks

a) 5/8 (1). b) 1/4 (1). c) 2.009,2.09,2.19 (1).

Question 4 • 3 marks

a) 10.05 (1). b) 8.3 (1). c) 35 (1).

Question 5 • 3 marks

a) 135 min (1). b) 6 (1). c) 3/8 (1).

MARKING THE NON-CALCULATOR SECTION

Award one mark per correct part. Working is useful for diagnosing errors. Score: ____ /15. Do not convert this to an official pass decision.

ORIGINAL MARKING GUIDANCE • CALCULATOR SECTION

Mock B: Section B solutions

Question 6 • Volunteer kits • 9 marks

a) 75÷5 = 15 (1), small 30 (1), large 45 (1). b) Small £144 (1), large £279 (1), delivered £438 (1), enough with £12 spare (1). c) 30+45 = 75 (1). Valid estimate, for example 30×£5 ≈ £150, close to £144 (1).

Question 7 • Museum visit • 9 marks

a) Map length 8 cm (1), real 2,000 m (1) = 2 km (1). b) 25 minutes to 11:00 plus 20 (1) = 45 minutes (1). c) 10% £1.60 and 5% £0.80 (1), discount £2.40 (1), price £13.60 (1), total £340 (1).

For drawings, use the stated dimensions, labels and checking criteria. Accept other valid mathematical routes. Award each stage once. These allocations are educational guidance rather than any board’s official rules.

ORIGINAL MARKING GUIDANCE • CALCULATOR SECTION

Mock B: Section B solutions

Question 8 • Making a display • 9 marks

a) Large 84 m² (1), removed 8 m² (1), remaining 76 m² (1). b) Divide 76÷2 (1), 38 packs (1), £418 (1). c) 324 photos (1), 256 photos (1), difference 68 (1).

Question 9 • Survey and stock • 9 marks

a) Angles 180°,90°,90° (3, one each), accurate construction within ±2° (1), title and labels/key (1). b) Total 40, mean 10 (2: sum 1, mean 1), range 6 (1). c) 24/32 = 3/4 (1).

For drawings, use the stated dimensions, labels and checking criteria. Accept other valid mathematical routes. Award each stage once. These allocations are educational guidance rather than any board’s official rules.

ORIGINAL MARKING GUIDANCE • CALCULATOR SECTION

Mock B: Section B solutions

Question 10 • Funding and storage • 9 marks

a) Annual interest £30 (1), total interest £60 (1), final £660 (1). b) Discount £70 (1), sale £630 (1), delivered £650 (1), affordable with £10 left (1). c) 400,000 cm³ (1), 400 litres (1).

For drawings, use the stated dimensions, labels and checking criteria. Accept other valid mathematical routes. Award each stage once. These allocations are educational guidance rather than any board's official rules.

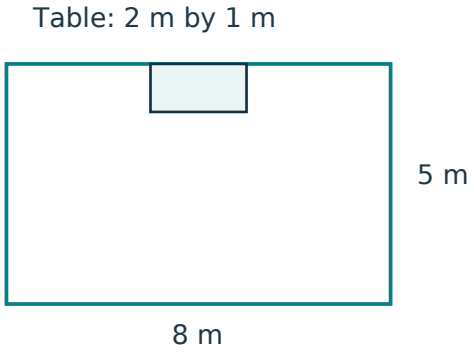
REVIEW YOUR RESULT

Section A: ____ /15 Section B: ____ /45
Total: ____ /60
Three topics to revisit: _____
There is no official pass boundary for this practice mock.

VISUAL SOLUTIONS • TOPIC 21 AND MIXED CHALLENGE 5

Scale-plan answer guides

Topic 21.4: room and table



Schematic answer guide

Dimensions are authoritative.

Not for ruler measurement.

At 1 cm for 1 m, draw the room 8 cm by 5 cm and the table 2 cm by 1 cm. Put a 2 cm table edge against the centre of an 8 cm wall. The gaps to either end are (8-2)÷2 = 3 cm. Label the real lengths, not only the drawing lengths.

Mixed Challenge 5: storage room



Schematic answer guide

Dimensions are authoritative.

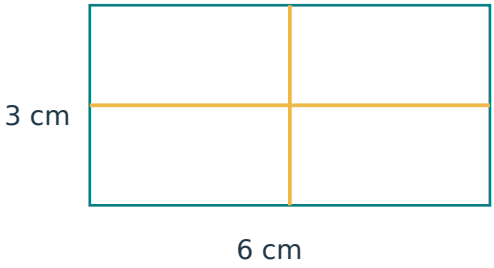
Not for ruler measurement.

Actual student drawing: 6 cm by 4 cm; label 6 m and 4 m and state the scale. The schematic answer drawings on this page are not at that scale.

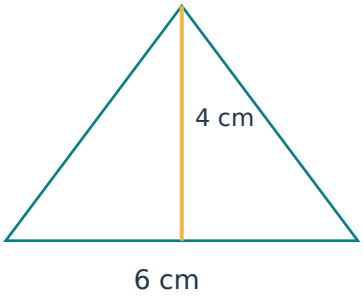
VISUAL SOLUTIONS • TOPIC 24

Construction and symmetry answers

Question 24.3: two centre symmetry lines



Question 24.4: one symmetry line



These schematic figures show the features to check, not actual-size construction templates. Use a ruler for the stated lengths and a protractor or square corner for the perpendicular height. The triangle’s top vertex is vertically above the base midpoint. The non-square rectangle has two symmetry lines; its diagonals are not symmetry lines.

CHECK THE DRAWING

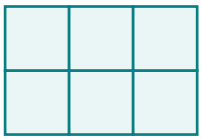
Accurate dimensions; correct shape; all required labels; symmetry lines through the correct points; no invented extra lines.

VISUAL SOLUTIONS • TOPIC 25

Plans, elevations and a cube net

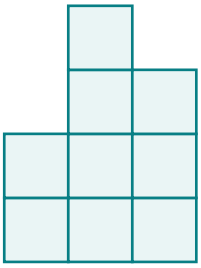
Front row heights 2,1,3; back row heights 1,4,2. Total cubes 13. The plan has six occupied cells.

Plan

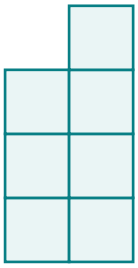


FRONT ↑

Front elevation

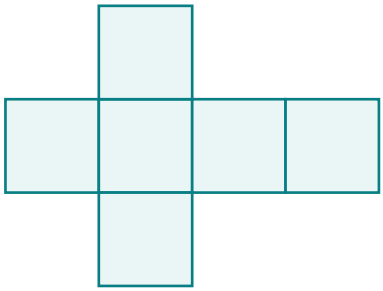


Right elevation



Front → back

Front outline uses column maxima: max(2,1)=2, max(1,4)=4, max(3,2)=3. Right outline uses the largest stack in each row: 3 at the front, 4 at the back. Views hide cubes, so add every stack for the total count.



One valid cube net

Six equal square faces

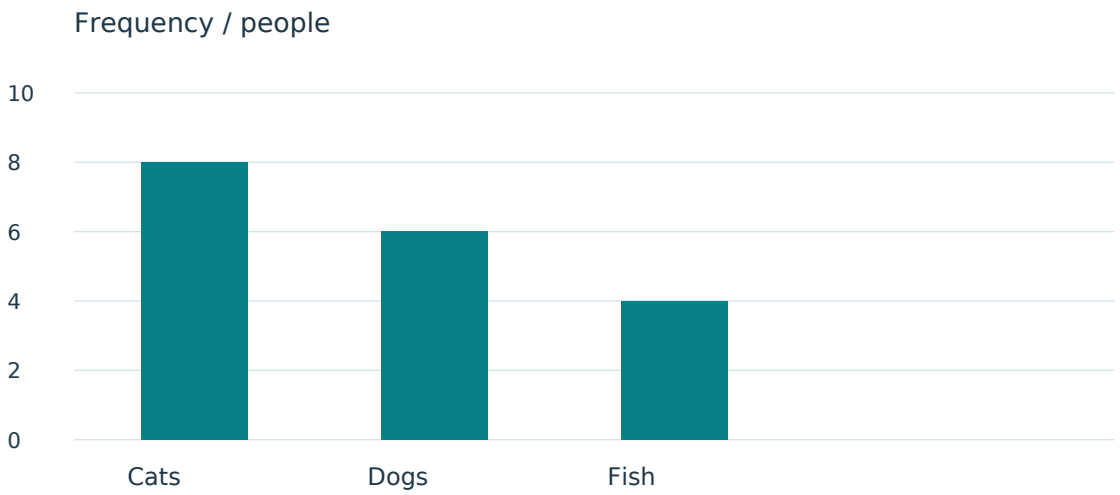
Fold along shared edges

The net above is one valid arrangement of six equal square faces. It illustrates the folding requirement in Question 25.2; a row of six squares does not close all cube faces.

VISUAL SOLUTIONS • TOPICS 27 AND 28

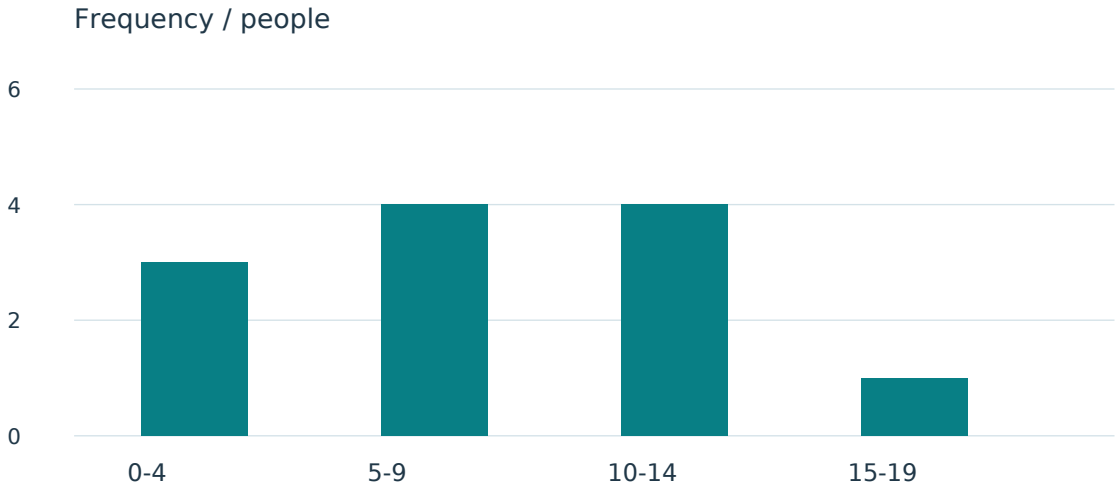
Bar-chart and grouped-data answers

Topic 27.3: pet choices



Use a title such as “Pet choices”. Name the horizontal categories and label frequency on the vertical axis. All bars start at zero, have equal widths and are separated. A different sensible equal-interval scale is valid.

Topic 28.4: grouped observations

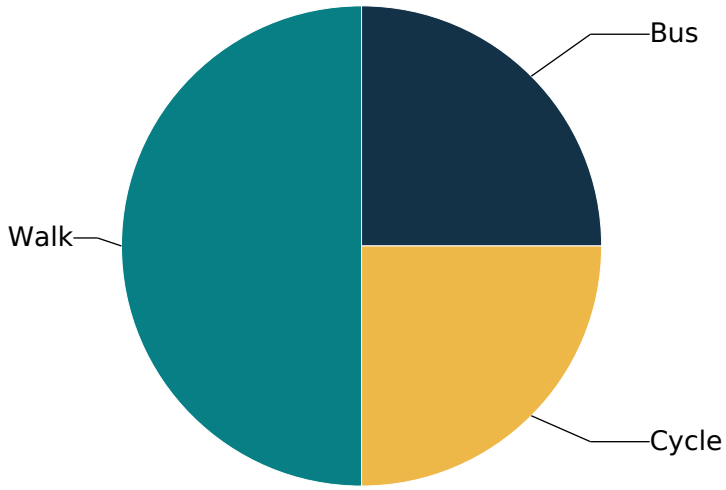


Frequencies 3,4,4,1 total 12. The middle two classes tie for the largest frequency. Each observation belongs to one class. A frequency table should use the same class labels as the chart.

VISUAL SOLUTIONS • TOPIC 27.4 AND MOCK B QUESTION 9

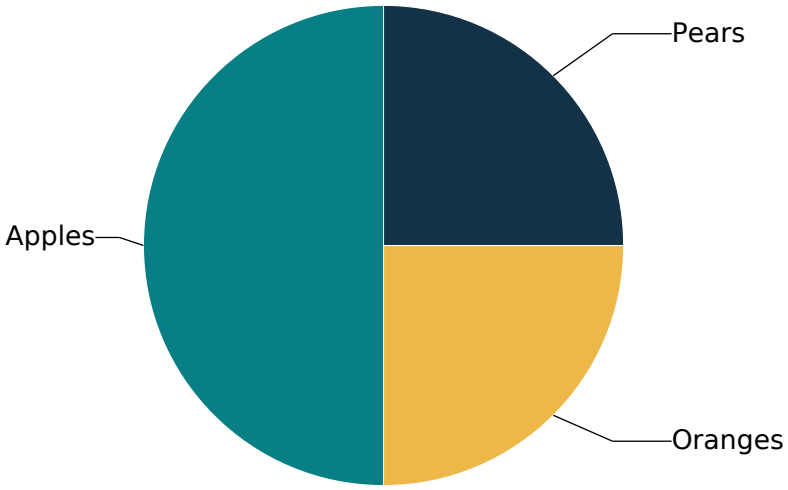
Pie-chart answer guides

Topic 27.4: travel choices, 24 people



Walk 12/24×360° = 180°. Bus and cycle each 6/24×360° = 90°. Sector angles total 360°. Start each new angle at the previous sector boundary, then label the chart or add a key.

Mock B Question 9: fruit choices

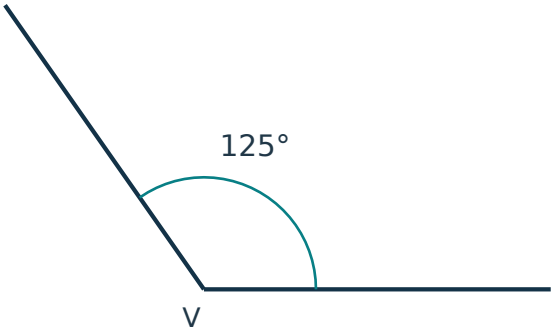


Total 32. Apples 180°, pears 90°, oranges 90°. Equal-sized sectors in two charts represent equal shares; the counts can differ because survey totals differ.

VISUAL SOLUTIONS • TOPICS 26 AND 30

Angles and probability scales

Topic 26.3: 125° obtuse angle

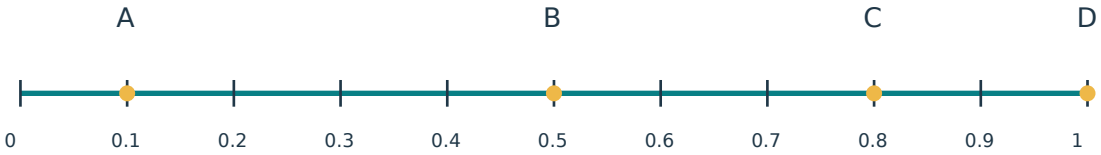


Vertex V

Obtuse angle

An angle between 90° and 180° is obtuse. The protractor centre belongs on the vertex and its zero baseline on the starting arm. Follow the scale starting from that zero. Arm length does not change the angle.

Topic 30.4: likelihood



A 0.1, B 0.5, C 0.8, D 1. Least to most likely A,B,C,D. C is likely but not certain: probability 0.8 allows failure on a single attempt. D is certain within the model.

EXTRA PRACTICE 1 • 7 MARKS

Line graphs and interpreting change

Calculator permitted. Read and construct a time graph.

a [4 marks] A greenhouse records 8°C at 08:00, 12°C at 09:00, 10°C at 10:00 and 16°C at 11:00. Draw a labelled line graph on the grid. Use equal spacing for one-hour intervals.

0.5 cm squares at 100% / actual-size printing

b [3 marks] Find the overall temperature change. Under the straight-segment model, estimate the reading at 10:30. Explain the meaning of that estimate.

Answers: page 142. Score: ____ /7.

EXTRA PRACTICE 2 • 7 MARKS

Reading measuring scales

No calculator. Use the stated units and count gaps, not tick marks.

a [3 marks] A measuring jug has labelled readings 100 ml and 200 ml with five equal gaps between. What is one gap worth, and what reading is three gaps above 100 ml?

b [4 marks] An object begins at the 1.7 cm mark of a ruler and ends at 8.4 cm. Find its length. A parcel has mass 2.6 kg. Convert to grams and state a suitable tool for measuring its mass.

Answers: page 143. Score: ____ /7.

EXTRA PRACTICE 3 • 7 MARKS

Patterns and practical time

No calculator. Explain the rule or interval you use.

a [4 marks] Continue 7,12,17 by three terms. A tile pattern has 4,7,10 tiles in stages 1,2,3. Find stage 5 and explain the change.

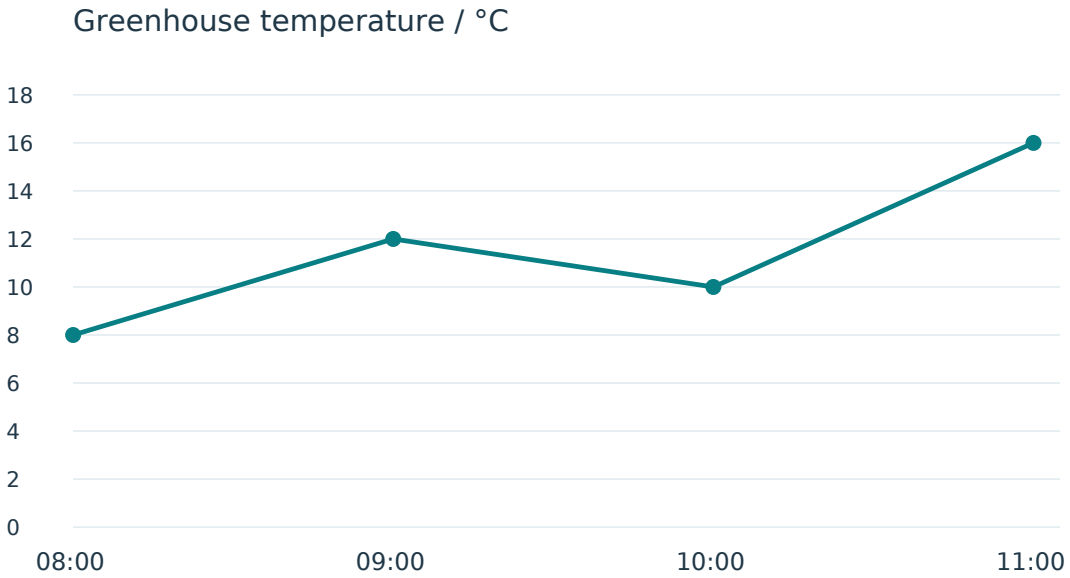
b [3 marks] A bus leaves at 23:35 and arrives at 00:20 next day. Find journey time. A meeting starts at 14:50 and lasts 1 h 35 min. Find finish time and write it using am or pm.

Answers: page 144. Score: ____ /7.

EXTRA PRACTICE 1 • WORKED SOLUTIONS

Line graphs and interpreting change

a. Time labels with equal spacing and temperature axis with °C (1). Sensible equal-interval scale (1). All four points correct (1). Title and consecutive straight segments (1).



b. Overall change 16-8 = 8°C rise (1). At 10:30, halfway from 10°C to 16°C, estimate 13°C (1). This is an interpolated reading under the drawn line model, not a directly recorded observation (1).

Use these inherited skills alongside the main 31-topic practice. The same ideas can appear within a larger contextual question.

EXTRA PRACTICE 2 • WORKED SOLUTIONS

Reading measuring scales

a. Difference 200-100 = 100 ml (1). Divide by five gaps: 20 ml/gap (1). Three gaps above 100 ml is 100+3×20 = 160 ml (1).

b. Length 8.4-1.7 = 6.7 cm (2: method 1, answer 1). Mass 2,600 g (1). Weighing scales or a suitable balance (1).

READ THE SCALE

Identify two neighbouring labelled values, count equal gaps, divide the difference by that count and add the needed increments. Start from the instrument’s zero or subtract the actual starting reading.

Use these inherited skills alongside the main 31-topic practice. The same ideas can appear within a larger contextual question.

EXTRA PRACTICE 3 • WORKED SOLUTIONS

Patterns and practical time

a. Sequence continues 22,27,32 (2: rule +5, 1; all terms 1). Tile stage 5 has 16 tiles (1), because each stage adds 3: stages 4 and 5 have 13 and 16 (1).

b. Bus time 45 minutes (1): 25 minutes to midnight and 20 after. Meeting ends at 16:25 (1), or 4:25 pm (1).

TIME IS NOT BASE TEN

One hour is 60 minutes. Cross midnight in two stages if it helps. For a duration, keep track of elapsed time rather than subtracting clock displays as decimal numbers.

Use these inherited skills alongside the main 31-topic practice. The same ideas can appear within a larger contextual question.

MARK • REPAIR • RETRY

Track progress across all topics

Topic	First /14	Retry /14	Next action
01 Whole numbers to one million			
02 Positive and negative numbers			
03 Multiplying and dividing by 10,			
04 Multiplication and division fac			
05 Simple word formulae			
06 Squares of numbers			
07 Order of operations			
08 Common fractions and mixed numb			
09 Fractions of quantities			
10 Decimals to three decimal place			
11 Decimal calculations to two dec			
12 Rounding for a stated purpose			
13 Reading and comparing percentag			
14 Percentages of quantities and s			
15 Estimation with fractions and d			
16 Equivalent fractions, decimals			
17 Simple ratio and direct proport			
18 Simple interest			
19 Discounts and sale prices			
20 Converting everyday units			
21 Simple map and drawing scales			
22 Perimeter, area and composite r			
23 Volume of cubes and cuboids			
24 Drawing shapes, symmetry and an			
25 Plans, elevations and nets			
26 Measuring angles and describing			
27 Tables, bar charts, pie charts			
28 Grouping discrete data			
29 Mean and range			
30 The probability scale			
31 Simple events and equally likel			

Mixed challenges: ____ /60. Mock A: ____ /60. Mock B: ____ /60. Extra practice: ____ /21. Scores diagnose gaps; they do not establish an official pass threshold.

PERSONAL REVIEW NOTEBOOK

Turn an error into a better method

Code	Cause	Useful repair
R	Reading	Underline final request, unit and condition.
M	Method	Explain the relationship before calculating.
C	Calculation	Use a written method and an inverse check.
U	Units or whole	Convert units; identify the original whole.
A	Accuracy	Read rounding instructions; interpret whole packs.
E	Explanation	Support a decision with figures.

Question	Code	Correct method and reason	Retry date

MY NEXT THREE ACTIONS

1. Topic and method: _____
2. A check I will use: _____
3. Official board sample to complete: _____

After a retry, explain the method without looking at the solution. Ask a tutor to review drawing answers and any alternative method you cannot confidently mark.

SOURCE RECORD 1 OF 4 • CHECKED 13 NOVEMBER 2026

Official sources and preparation routes

S1 • DfE shared mathematics content

Curriculum basis; Level 1 builds on earlier levels. Short topic labels are independently written.

Open official source

S2 • Ofqual mathematics requirements

Common calculator weighting and assessment requirements. This notebook’s mocks are practice materials, not validated regulatory assessments.

Open official source

S3 • Pearson Level 1/2 specification

Full Level 1 content sequence; companion learning guide uses the same 31-point route.

Open official source

How evidence informed the questions

The design uses short skill checks followed by straightforward contextual problems, supported conclusions, practical units, chart work and drawings. Topic labels are removed in mixed challenges and mocks. Similarity to official assessments is in skills and general demands, not copied wording, distinctive scenarios or layouts.

SOURCE RECORD 2 OF 4 • CHECKED 13 NOVEMBER 2026

Official sources and preparation routes

S4 • Pearson official preparation route

Official support page describes sample onscreen assessments, practice papers and retired live papers. Individual papers were not inspected for this edition.

Open official source

S5 • City & Guilds sample and past-paper route

Public Level 1 Sample 2 non-calculator paper inspected. Qualification page lists samples, past papers and Open Assess routes; no access to restricted live material was used.

Open official source

S6 • NCFE Level 1 online-sample mark scheme

Public mark scheme inspected for method/accuracy evidence, checks, units and application. Latest paper-based samples may need centre login.

Open official source

Direct City & Guilds paper inspected

Level 1 Sample 2 non-calculator paper

SOURCE RECORD 3 OF 4 • CHECKED 13 NOVEMBER 2026

Official sources and preparation routes

S7 • NCFE online practice route

Official Level 1 in-browser sample and mark scheme links. In-browser responses are not automatically marked; follow current instructions to retain work.

Open official source

S8 • Open Awards Level 1 sample and mark scheme

Public version 1.2 inspected. Supports study of staged contextual problems, constructions and explanations. This book does not reproduce its tasks.

Open official source

S9 • AQA Level 1 examiner feedback

November 2021 historical report inspected. Highlights interpretation, accurate methods, labels and supported decisions; not a current administrative rulebook.

Open official source

AQA June 2022 Level 1 non-calculator paper

Respect official access conditions

Use current materials supplied through your centre or an official public route. Do not share restricted papers or use a historical sample’s timings, permitted equipment or boundary as a universal rule. No restricted live paper was consulted.

SOURCE RECORD 4 OF 4 • CHECKED 13 NOVEMBER 2026

Official sources and preparation routes

S10 • AQA official past-paper route

June 2022 Level 1 non-calculator paper inspected alongside the current access route. Follow AQA’s access and classroom-sharing terms; do not assume all papers are unrestricted.

Open official source

S11 • Highfield mock-assessment route

Official page checked; links to paper and onscreen mocks and Highfield Core. Individual papers were not inspected.

Open official source

S12 • NOCN and TQUK / VQA routes

NOCN Level 1 qualification page and TQUK suite route checked. Individual sample papers were not inspected. TQUK suite URL redirected to VQA; confirm registered qualification and latest instructions.

Open official source

TQUK / VQA Functional Skills suite route

Your final preparation

Confirm your qualification, timings, calculator and drawing tools with your centre. Complete official familiarisation in the actual delivery mode, then review your method gaps. This notebook covers the shared Level 1 content but does not certify a complete audit of every current awarding organisation or paper.