

GCSE Examiners' Report

MATHEMATICS

GCSE

November 2025

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Introduction

Our Principal Examiners' report provides valuable feedback on the recent assessment series. It has been written by our Principal Examiners and Principal Moderators after the completion of marking and moderation, and details how candidates have performed in each component.

This report opens with a summary of candidates' performance, including the assessment objectives/skills/topics/themes being tested, and highlights the characteristics of successful performance and where performance could be improved. It then looks in detail at each unit, pinpointing aspects that proved challenging to some candidates and suggesting some reasons as to why that might be.¹

The information found in this report provides valuable insight for practitioners to support their teaching and learning activity. We would also encourage practitioners to share this document – in its entirety or in part – with their learners to help with exam preparation, to understand how to avoid pitfalls and to add to their revision toolbox.

Further support

Document	Description	Link
Professional Learning / CPD	Eduqas offers an extensive programme of online and face-to-face Professional Learning events. Access interactive feedback, review example candidate responses, gain practical ideas for the classroom and put questions to our dedicated team by registering for one of our events here.	https://www.eduqas.co.uk/home/professional-learning/
Past papers	Access the bank of past papers for this qualification, including the most recent assessments. Please note that we do not make past papers available on the public website until 12 months after the examination.	Portal by WJEC or on the Eduqas subject page
Grade boundary information	Grade boundaries are the minimum number of marks needed to achieve each grade. For unitised specifications grade boundaries are expressed on a Uniform Mark Scale (UMS). UMS grade boundaries remain the same every year as the range of UMS mark percentages allocated to a particular grade does not change. UMS grade boundaries are published at overall subject and component level. For linear specifications, a single grade is awarded for the subject, rather than for each component that contributes towards the overall grade. Grade boundaries are published on results day.	For unitised specifications click here: Results and Grade Boundaries and PRS (eduqas.co.uk)

¹ Please note that where overall performance on a question/question part was considered good, with no particular areas to highlight, these questions have not been included in the report.

Exam Results Analysis	Eduqas provides information to examination centres via the WJEC Portal. This is restricted to centre staff only. Access is granted to centre staff by the Examinations Officer at the centre.	Portal by WJEC
Classroom Resources	Access our extensive range of FREE classroom resources, including blended learning materials, exam walk-throughs and knowledge organisers to support teaching and learning.	https://resources.eduqas.co.uk/
Bank of Professional Learning materials	Access our bank of Professional Learning materials from previous events from our secure website and additional pre-recorded materials available in the public domain.	Portal by WJEC or on the Eduqas subject page.
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Executive Summary

Many of the candidates entered for foundation tier were well prepared for the examination with targeted teaching from centres on certain topics to help candidates obtain a grade 4. However, some candidates had very little knowledge, and some very low marks were seen. With the November series being a resit opportunity candidates struggled to engage the questions that are common to higher tier.

At foundation tier, poor numerical on the non-calculator paper continues to be evident. Often the correct method is shown but the execution of the method is incorrect. Candidates would benefit from checking their answers to help identify if an error has been made.

Multi-step problem solving questions will always be asked. Candidates need to be encouraged to organise their working in a manner that can be followed, ideally adding labels or sub-headings to their work. The final answer should be clearly identified.

Often several attempts at a question are offered but no indication as to which attempt should be taken as the answer.

The use of calculator is permitted for paper two, but many candidates use inefficient methods. To calculate percentages, partitioning e.g. $10\% + 10\% + 10\%$ was used rather than $0.3 \times \dots$ and repeated subtraction instead of division was often seen.

When using a calculator, premature rounding often introduced errors into solutions. Candidates are advised to use their full calculator display in each step of their working and only to round only the final answer to an appropriate degree of accuracy.

At higher tier, many candidates would have been better suited being entered for foundation tier. Many of the algebraic skills that underpin many of the higher tier topics e.g. expansion of double brackets and forming equations, were lacking and basic skills e.g. trigonometry and probability tree diagrams were weak.

At both tiers it was very disappointing to see so many candidates not attempt the multiple choice questions.

Item-level data is available to all centres, allowing detailed comparison between individual candidates. This report also highlights some of the common errors and misconceptions seen in candidate responses.

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FOUNDATION TIER: COMPONENT ONE

Overview of the Component

This non-calculator component assesses candidates on their ability to use and apply standard mathematical techniques. Candidates are expected to reason, interpret, and communicate mathematically, as well as solve problems presented in contexts.

The questions set were in line with those from previous series and provided a fair and appropriate assessment for candidates working at this level.

To perform well, candidates needed to read each question carefully and make full use of all the information provided, particularly key terms and phrases. It was important that they showed all relevant working, especially where this was specifically required. Candidates who used efficient methods and presented their solutions clearly and systematically were generally more successful.

Although many candidates engaged effectively with much of the paper, a notable proportion struggled with questions which were common with the Higher Tier component, particularly when working with vectors.

There was no evidence that time pressure prevented candidates from attempting questions within their capability.

It was also observed that few candidates used checking strategies, such as applying inverse operations, to confirm the accuracy of their answers. Greater emphasis on these techniques would help improve accuracy.

Comments on individual questions/sections

Question	General comments
1.(a) Division	This part was well answered. The common incorrect answers were 53 and 509.
1.(b) Number in words	This part was well answered.
1.(c) Multiplying by 1000	This part was well answered. The common incorrect answers were 0.31000 and 3100.
1.(d) Order of operations	Candidates found this part more challenging. Brackets were often placed around $4 + 5$, whilst others put two or more pairs of brackets into the calculation.

1.(e) Subtracting decimals	This part was well answered. The most common incorrect answer was 0.9, though some candidates added the two values instead of subtracting them.
1.(f) Least value	Most candidates correctly selected –8 as their answer. –7.6 was the most commonly selected incorrect answer.
1.(g) Directed numbers	This part was well answered. The candidates who were incorrect, nearly all gave an answer of –11.
2.(a) British Lions multiple problem	Candidates engaged well with this question, with many correct answers seen. The most common strategy was to repeatedly add on 4 years from 2025, but numerical errors were often seen.
2.(b) Fraction	This part was well answered. The numerator of fractions was almost always correct, but some candidates made errors with the denominator, with $\frac{3}{20}$ a common incorrect answer.
3.(a) Fraction to %	This part was well answered. A final answer as $\frac{86}{100}$ scored B0.
3.(b) Inequality with fraction + % of a quantity	Candidates engaged well with question. Most candidates who correctly calculated $\frac{7}{20}$ of 40 and 30% of 50 went on to use the correct symbol to complete the statement. Those who did not give a fully correct response were typically more successful at calculating 30% of 50 than $\frac{7}{20}$ of 40. Some candidates converted $\frac{7}{20}$ to 35% but were then unable to correctly calculate 35% of 40.
4.(a) Pictogram key	This part was very well answered.
4.(b) Interpreting	This part was very well answered.
4.(c) Completing pictogram	Candidates found this part more challenging than (a) and (b). Some were awarded one mark for identifying 18 cars were sold on Thursday but were unable to represent this correctly on the pictogram.
4.(d) Simplifying ratio	Most candidates were awarded one mark in this question for writing a correct equivalent ratio, but many were unable to write their ratio in its simplest form.
5.(a) Coordinates	This part was very well answered.
5.(b) Plotting	The majority of candidates correctly plotted point B. The common error was plotting B at (7, 2) which would have made <i>ABCD</i> a parallelogram instead of a rectangle.
5.(c) Midpoint	This part was well answered by candidates.
5.(d) Point on the line AB	Candidates found this part more challenging. Coordinates which added to 1 were often given, but they were not on the line <i>AB</i> .
6.(a) School bus trip	Candidates engaged well with this multi-step problem, though numerical errors were often seen when dividing by 100.

6.(b)(i) Listing combinations	This part was well answered by candidates.
6.(b)(ii) Probability	This part was well answered by candidates. Occasionally answers were given in an incorrect form, such as '1 out of 9' or '1:9'.
7. Substitution	Candidates engaged well with this question, with an answer of 8 supported by correct workings often seen. Numerical errors were made by some candidates, whilst others neglected the £50 or worked with £130.
8. Sand problem	Most candidates were able to complete the first step of this problem, but some couldn't go any further. Incorrect answers of 1 were often seen, obtained by subtracting 14 from 15 instead of 18.5.
9. Scale drawing	Some candidates found it challenging to convert their answer from cm to mm, with many multiplying (or even dividing) by 100 instead of 10.
10.(a)(i) Basic equation	The majority of candidates were able to correctly solve this basic equation, with embedded answers often seen. The common incorrect answer was 2, obtained by calculating $10 \div 5$ instead of 10×5 .
10.(a)(ii) Two-step equation	This part was answered more successfully than (i). Embedded answers were often seen. A small proportion of candidates added 3 to $6x$ to incorrectly obtain $9x$, before then attempting to divide 51 by 9.
10.(b) Factorise	Few candidates were able to correctly factorise the expression.
10.(c)(i) Forming expressions	Some candidates gave the inequality $4 < y$, instead of the expression $y - 4$ in this part.
10.(c)(ii) Forming expressions	This was answered more successfully than (ii). Some candidates scored B0 for giving their final answer as a calculation (e.g. $\frac{1}{4} \times y$ or $y \div 4$) instead of an expression.
10.(d) Like terms pyramid	Candidates were more successful at finding $13w$ than $-w$. A few candidates gave answers of 13 and -1 , scoring B0.
11. Best value	Most candidates knew that they needed to compare a common amount of each carton, but some were let down by calculation errors, particularly when calculating $2.16 \div 6$. Incorrect units were often seen (e.g. 0.40p instead of £0.40 or 40p) and were penalised in the accuracy marks.
12.(a) Ages mean	An incorrect answer of 38 was often seen in this part, obtained by subtracting 12 from 50 (the sum of their ages).
12.(b) Median problem	Few candidates answered this part correctly, with many agreeing with Tilly's statement or giving insufficient reasoning as to why her statement is incorrect. Some confusion with the mean was seen.
13. Cost of fruit	Most candidates were able to complete one or two steps correctly, but many were unable to complete the final step. Those who multiplied by 5 were more successful than those who divided by 0.2.
14.(a) Enlargement (no centre)	The majority of candidates were able to correct enlarge the shape. The common error was to increase each side length by 3 squares.

14.(b) Translation	Candidates found this translation question more challenging than the enlargement. Some candidates scored B1 for translating the shape correctly in either the vertical or the horizontal, but not both.
14.(c) Rotational symmetry	This part was well answered, with many of the successful candidates drawing each shape to help identify the correct answer. The most common incorrect answer was rhombus.
15. Circumference of a cylinder	This question was poorly answered, with many candidates confusing the formulae for area of a circle and circumference of a circle. Those who used the correct formula, often made numerical errors multiplying $3 \cdot 14$ by 100 or $6 \cdot 28$ by 50.
16.(a) nth term	This part was not well answered, with incorrect answers of $3n + 1$ often seen.
16.(b) Three terms	This part was not well answered by candidates. Most understood the need to substitute $n = 1, 2$ and 3 into the given n th term but were unable to do this correctly.
17. Isosceles triangle problem	Most candidates who made a correct start to this question, went on to get 3 or 4 marks. Some numerical errors were seen dividing 13 by 4, with $3 \cdot 5$ often seen as a final answer. Very few candidates attempted to use trials which was pleasing to see as attempts using trials were not credited in this question.
18. Sharing angles in a ratio	Most candidates who engaged with the ratio in this question went on to get the correct answer for the larger angle. An incorrect answer of 120° was occasionally seen, obtained by calculating $\frac{2}{3}$ of 180.
19. Electricity bill	Some candidates made place value errors when multiplying 600 by 25, with 1500 often seen. Calculating 5% of the total charges was also challenging for many, whilst a few candidates subtracted their value for VAT from the total charges instead of adding it on.
20. Hotel room problem	Candidates engaged well with this question, with many awarded 4 or 5 marks. Some candidates worked correctly with the more challenging aspects of this question and were able to find the total number of rooms booked but didn't go any further.
21. Number machines	This question was poorly answered by candidates, with few fully correct answers seen. Some candidates picked up a mark for forming expressions for each of the number machines - or for two correct trials for each of the machines - but couldn't go any further.
22.(a) Product of prime factors	Most candidates used a correct method to find the product of primes, but numerical errors were often seen. Some candidates stopped at non-prime numbers.
22.(b) Product of prime factors	This was poorly answered by candidates, with very few fully correct answers seen.
23.(a) Vectors	This was poorly answered by candidates, with candidates often simply stating the arrow should be the other way.
23.(b) Vectors	This was poorly answered by candidates. Some picked up one of the three marks for writing $15 - 2m$, but very few correct answers were seen.

24.(a) Crossword	Candidates engaged well with this question, but many made numerical errors. SC1 was often awarded for an answer of 30 from $\frac{36}{6} \times 5$.
24.(b) Crossword	This part was poorly answered by candidates. It was very rare to see a fully correct response. Many of the ratios given still contained <i>f</i> and <i>g</i> .
25. Density - bangles	This question was poorly answered, with few candidates demonstrating an understanding of how to approach the question; instead, many simply tried to multiply or divide each of the values given in the question.
26.(a) Tree diagram	It was very rare to see a fully correct tree diagram. Some candidates were awarded 1 mark for correctly completing the two missing branches for dessert, but few were able to find the correct values for the starter branches.
26.(b) Product - starter and dessert	This was poorly answered by candidates, with most adding the values from the two branches instead of multiplying them. Those candidates who multiplied the branches often made numerical errors, particularly on follow through.

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FOUNDATION TIER: COMPONENT TWO

Overview of the Component

Many candidates were able to access a good proportion of the questions. However, a lot of candidates did struggle to attempt some of the questions in the middle of the paper and those that are common with higher tier.

Candidates were able to use a calculator for this paper but sometimes chose to use non-calculator methods. For example, on question 14 some candidates used a partitioning method to calculate 30% discount instead of an efficient calculator method. When this approach was used, there were often numerical errors.

There were various questions on this paper which involved calculations with money. These were well answered, and the use of pounds and pence were used correctly most of the time. There were some place value errors on Q2(a) where values were given in a mixture of pence and pounds.

On question 11 the accuracy of the final answer was often affected by premature rounding. Candidates should be advised to use their full calculator display on each step of their workings until the final step, which can then be rounded to an appropriate degree of accuracy.

The use of trials is not an efficient method for solving equations, candidates should use a formal method for solving equations, particularly simultaneous equations.

Comments on individual questions/sections

Question	General Comments
1. Rounding / shading a fraction of an amount / place value	Candidates answered part (a) well, most were able to use their calculator correctly and then round their answer to the nearest 10. In part (b) a large proportion of candidates were able to simplify the fraction shaded and then shade the second shape correctly. Whilst some were only able to write out the fraction of the original shape that was shaded. Most candidates had some success on part (c) but not always full marks. They commonly got zero tens and the odd number in the last box correct, but they found the factor and multiple conditions more difficult to interpret.
2. Money calculations	Part (b) was answered correctly more often than parts (a) and (c). Both (a) and (c) often included errors in place value because of the mixture of pounds and pence in the table. In part (c), candidates occasionally chose incorrect values from the table e.g. Monday to Friday prices instead of Saturday prices.

3. Angles	Candidates struggled to give an adequate explanation for part (a), with most simply referring to 'angles in a triangle sum to 180' without reference to obtuse angles. Part (b) was well answered, although occasionally 360 was used instead of 180 as the sum of the angles on a straight line. In part (c), candidates were often able to arrive at an answer of 142 but could not always interpret the 2y and did not go on to obtain full marks.
4. Probability scale	All parts of part (a) were generally well answered, but part (iii) had the lowest success rate. In part (b), candidates were required to show all steps of their reasoning and calculations to obtain the probability of blue = $\frac{1}{3}$. Most were able to achieve one mark by finding that there were 14 blues, but not all could adequately show why this represented $\frac{1}{3}$ of the jellybeans. It should be noted that the statement ' $\frac{1}{3}$ of 42 = 14' is not sufficient in a 'show that' question. A calculation needs to be seen.
5. Drawing a bar chart	A high proportion of candidates were able to complete the table correctly. To achieve full marks for drawing the bar chart an appropriate scale must have been chosen. Each axis should have been labelled and all bars drawn at the correct height (with equal width). The most common error was not labelling the vertical axis. Whilst most candidates chose either a scale with steps of 2, 4 or 5, some labelled in between the squares instead of on the lines. This often led to bars with an incorrect height.
6. Similar shapes / ratio / enlargement	In part (a), it was common to see an answer of 6:9 without simplification. In part (b) candidates were often able to identify that the triangles were right-angled and similar but did not recognise the term scalene.
7. Types of number	Candidates generally scored some marks on part (a) but they did not always interpret <u>all</u> the conditions given in (i) and (ii) and so full marks were not always achieved. Part (b) was well answered in comparison to previous similar questions. Candidates were usually able to identify the error and provide an explanation worthy of credit.
8. Times zones / exchange rates	Whilst most candidates seemed to understand the process of what was required to calculate the landing time, many could not do so accurately. If 7 hours 15 minutes was used as a decimal e.g. 7.15 the answer was often incorrect. Those that used a partitioning method were the most successful. A proportion of candidates arrived at an answer of 17:03 but did not interpret the time difference. Occasionally an answer of 14:03 was given, subtracting the time difference instead of adding. Incorrect notation for time was sometimes seen e.g. 08:03pm or 20:03pm. Candidates were often successful in converting the currency in part (b), this was mostly followed by a correct conclusion. Where a candidate chose not to use their calculator to complete the conversion, they often made numerical errors.

9. Algebra	In part (a), a good proportion of candidates were able to recognise that the numbers were multiplied by 2, but not -2, which the question required. Answers of 96 and 192 or -96 and -192 were often seen. In part (b), candidates struggled with both terms being negative. $12h - 7j$ was common while others disregarded the negative symbols altogether. $24h + 17j$ was also a common incorrect answer. In part (c), some candidates were able to correctly substitute the values, but they found the rearrangement of the formula difficult. Part (d) was correct a pleasing number of times. Candidates struggled with the expressions required in part (e). In (i) it was common to see $x - z$ instead of $z - x$, when $z - x$ was seen it was often spoiled by equating it to y. A small proportion of candidates could interpret (ii) correctly but brackets were omitted in most cases and so the mark could not be awarded.
10. Interpreting a two-way table	Candidates answered part (a) very well, it was mostly fully correct. They found part (b) the most challenging, an incorrect answer of 29/74 was common. In part (c), most candidates could usually start with 128/180, but not all could go on to change this into a percentage.
11. Speed / distance / time	There were various methods observed in this question. Candidates who chose to partition into 24, 24 and 12 minute intervals were usually successful in obtaining the correct answer. When a 'miles per minute' strategy was seen it often led to an inaccurate final answer due to premature rounding.
12. Bearings	This question was not answered well; it was rare to see a correct angle in part (a) and even more rare to see it written as a three-figure bearing. Part (b) was also poorly answered, whilst some candidates were able to either measure the angle or the bearing correctly, it was not often that both were correct.
13. Mean from a frequency table	This was not answered well. Most candidates were able to complete the missing entry in the table but did not have a strategy for calculating the mean from a frequency table. In some cases where the 'sum of the number of people $\times$ number of devices' was correctly evaluated it was often divided by 5 (the number of rows) not the total number of people.
14. Percentage / fraction problem solving	There were two main methods of answering part (a). Either calculating the total cost for each offer or looking directly at the saving for each offer. Whilst there were some pleasing fully correct responses, candidates often used a mixture of methods e.g. saving for offer A and total cost for offer B. This then led to incorrect conclusions and cost differences. Part (b) was not well answered.
15. Transformations	Neither of the transformations were answered well, candidates had slightly more success in part (b) (the rotation) than part (a) (the reflection).

16. Area	It was rare for a candidate to gain full marks on this question. A mark for the area of the square was often awarded to candidates, but very few could progress beyond this. Occasionally a perimeter for the square was calculated instead of its area. When equating the square area to the formula for area of a triangle, the $\frac{1}{2}$ was often omitted or incorrectly dealt with.
17. Simple interest	This question was challenging for candidates; however, they were usually able to gain one or two marks by calculating the difference between the two values given in the question and then dividing that by 5 to obtain the interest for 1 year. Very few could go on to calculate the value of r .
18. Ratio	Part (a) was not well answered; it was very rare to see a correct response. Candidates had more success in part (b), this was often correct.
19. Pressure	Candidates struggled with this question, very few were able to calculate the area of a semi-circle even with the formula provided. If the formula was used correctly, candidates often forgot to divide the area of the full circle by two before using it in the pressure formula.
20. Probability	This was almost never answered correctly; the most common incorrect answer was $\frac{2}{12}$.
21. Simplifying expressions / algebraic fractions	Candidates made good attempts in part (a) but were not always awarded full marks. Often the indices were added but the 7 and 12 were as well. It should be noted that the inclusion of multiplication symbols in the final answer was penalised one mark. Part (b) was almost never answered correctly.
22. Repeated proportional change	There were very few candidates that carried out a repeated increase of 4% on the year before. Most were opting for an increase of 720 people each year leading to an incorrect conclusion. If the decimal multiplier of 1.04 was used, the candidate was usually more successful at obtaining the correct answer.
23. Pythagoras theorem / trigonometry	Very few candidates were familiar with Pythagoras' theorem or trigonometry. Both parts of this question were rarely answered correctly.

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HIGHER TIER: COMPONENT ONE

Overview of the Component

This component tested the content of topics from the full specification. The paper was set with questions of increasing difficulty and in a variety of styles accessing all three assessment objectives. The potentially more difficult AO3 (problem solving) questions did not deter candidates.

The paper was a fair test for the candidates at this level with questions being comparable with those asked previously.

Compared with the summer series, as with previous years, there were fewer candidates entered. Yet again, the lack of knowledge and preparation was demonstrated by the responses of most candidates.

It was pleasing to see attempts at many questions. Quite often it was just a general lack of basic numerical or algebraic skills, together with checking processes that let candidates down. The following section summarises these in general:

Numerical skills

Candidates were hindered by lack of numerical skills with a number of questions, including:

- Question 2 – breaking down 540 into a product of primes
- Questions 11 and 19 – manipulating surds
- Question 12 – working with numbers in standard form
- Question 15 – indices
- Question 17a – numerical errors when changing a recurring decimal to a fraction.

Algebraic manipulation

Candidates were hindered by lack of algebraic skills with a number of questions, including:

- Question 1 – forming and solving by equating two expressions
- Question 4 – forming and solving an inequality
- Question 17b – factorisation – more than one step.

Mathematical knowledge

The non-attempt by many candidates for the following questions implied that candidates had either not been taught or had sufficient practice with some topics. These questions include:

- Questions 3 and 20 – vectors
- Question 6 – area and volume of prisms (from a composite shape for a cross-section)
- Question 9 – probability tree diagrams
- Question 10 – straight line graphs
- Question 11 – finding the n th term of a quadratic sequence
- Question 14 – histograms
- Question 16 – proportionality between two variables
- Question 18 – circle theorems

- Question 21 – real life graphs – tangents and area
- Question 22 – trigonometric graphs and their transformations.

Checking processes were not always obvious to see, leading to many errors not being picked up. This aspect is vital with the lack of a calculator available. Numerical calculations were often made much more difficult by using incorrect values within subsequent working. This is really an aspect that needs to continue to have a focus within the classroom in order to maximise the candidates' end results.

There were still disappointingly, a number of 'multiple choice' questions left blank.

There are also a number of candidates showing many attempts at working within the same question with no clear indication of which solution is being presented.

Comments on individual questions/sections

Question	Commentary
1 Number machines	Despite variations of clumsy algebraic form, most candidates picked up the first mark for stating at least one of the expressions from the number machines. Following that, hardly anyone equated the two expressions. If they had, it was relatively easy to solve and most did, apart from one or two numerical slips. It was obvious that candidates did not check their answer by substituting back into both number machines. A number of candidates tried to solve using trial and improvement but did not get far due to the solution being a fractional value.
2a Product of prime factors	Nearly all candidates were successful in gaining at least some marks for this question. The usual division errors were seen in the factor trees, together with lack of knowledge of prime numbers and occasional use of '+' signs in the final index form expression.
2b	The few candidates that realised 35 can be written as 5×7 , managed to gain full marks on this question.
3a Vectors	Very poor responses were seen for this question, many referring to the arrow pointing the wrong way which was not sufficient for the mark.
3b	Hardly any candidates picked up 3 marks on this question, some picked up 1 mark for stating the vector drawn.
4 Forming and solving an inequality	A wide spread of marks on this question, from those with full marks which was pleasing to see, to those who were able solve an equation as opposed to an inequality. Others however, with poor algebraic skills, meant that they did not present an initial expression or made errors along the way, such as collecting linear terms incorrectly to give a quadratic. Despite the question requiring an inequality to be written, so many candidates did not, and so were penalised.

5a Ratio – crossword puzzle	This question was attempted by most. If candidates had understood that the 36 minutes related to 4 parts, then they were generally successful with the rest of the question. However, unfortunately this was not the case for most.
5b Writing ratios	Candidates found this question quite difficult. In order of most correctly answered, the second part, then the first part followed by the final part. However, it was common to see 'f' and 'g' in the ratios and also correct ratios not, or incorrectly simplified.
6 Volume of a prism	This question highlighted not only the lack of knowledge on dealing with composite shapes but also area and volume in general. Problems included, not using the correct formula for area of a semicircle, writing rectangle + semicircle rather than rectangle – semicircle, using the decimal form of Pi, not seeming to know volume = cross-section x length. The majority of candidates correctly found the diameter and the radius of the circle from the initial information given.
7a(i) and (ii) Pet shop data	Candidates got mixed up with mean, median, mode and even range for the first answer for each of these parts. Candidates had more success with the reason, quite a number mentioning the term 'outlier' in (i) or mentioning in (ii) that 0 is not a sensible average as only 7/25 didn't buy any treats.
7b	A number of fully correct solutions seen. Many candidates did not find any totals from the two means so did not gain any marks. Many just added the two means. Of those that did find totals, many made numerical errors from multiplication and/or division by 60. Some did not divide by 60, a few divided by 2. However apart from the candidates who did not divide by 60, despite numerical errors, all three method marks were gained where the only mark lost was the one for accuracy.
8 Density – making bangles	Very few candidates attempted the crucial first step of finding the volume of one bangle. If this wasn't attempted, no other marks could be gained.
9a Tree diagram	A number of candidates picked up the straightforward first mark for completing the probabilities on the second set of branches. However, very few realised that a division was needed first to find the value on the bottom first branch.
9b	The number of missing or totally inaccurate attempts at this part was disappointing to see as questions like this are asked in almost every paper and can easily be picked up even if none gained on part (a).

10a Straight lines – equation and gradients	Many not attempted. Some used the midpoint instead of the gradient formula. Good to see a number of fully correct solutions.
10bi	Chosen answers varied. $2/3$ and $-2/3$ seemed to be the most popular incorrect answer. Strange to see no option chosen in a multiple choice question for some candidates.
10bii	Similar to b(i). Chosen answers varied. $5/7$ seemed to be the most popular incorrect answer.
11a Sequences	Limited success with this question despite being context free and involving a straightforward numerical process. Many errors including negative value for -2^4, and lack of knowledge of manipulating basic surds.
11b	Again, similar to (a), candidates struggled, despite being a fairly straightforward quadratic sequence question. Very few candidates engaged with n^2, some finding the second difference of 6 but doing nothing further. A number of candidates gave an expression for a linear sequence. Most candidates seemed to just try different things with the numbers and did not engage with expressions at all.
12a Population and area	Not many correct responses with a varied choice of incorrect responses, the most common being 1.1×10^3 from an incorrect attempt at subtraction rather than a division.
12b	It was pleasing to see candidates correctly converting the two standard form values into ordinary values. However many mistakes were made in then adding these values. Lining up the digits to help eliminate these mistakes, was very rarely seen.
12c	Very few candidates engaged with this question, not knowing that population needed to be divided by area for population density.
13 Solving a quadratic graphically	Only one or two candidates picked up any marks at all on this question, ie the ones that actually drew the required line $y = -3$. Most of the other candidates seemed to have no idea how to approach this question, many drawing a sloped line in various places, others, often joining the end points of the existing curve. Some candidates also decided to translate the existing curve, usually upwards. It was also common to see, despite being asked to use the graph, candidates trying to manipulate one of the equations, by factorising or using the quadratic formula. Both of these latter methods led towards no marks.

14a Histogram	Of the few candidates that did attempt this question, very few calculated correct frequency densities. Those that did, usually picked up both marks for drawing the histogram.
14b	As for (a) very few attempted this question, those that did either misread the frequency densities in order to calculate the areas or didn't know what to do for the next stage.
15a Indices	Many candidates were able to deal with power $\frac{1}{2}$ but not with the negative.
15b	Not many candidates picked up all 3 marks. Many picked up 1 mark for $125 = 5^3$ but not many part marks for $(\sqrt[3]{25})^6$.
16a(i)(ii)(iii) Indirect proportion	The candidates that recognised this was a standard question and so knew the process, generally picked up at least 4 of the 5 marks. A few lost the usual final mark in (a)(i) by not writing the formula. a(iii) also proved more tricky than (ii).
16b	Most candidates did not attempt this question. Of those that did, a very small number gained the mark.
17a Recurring decimal to fraction	It was very pleasing to see that some candidates, with knowledge and obvious practice of this type of question, were able to produce a fully correct solution. Others unfortunately, just seemed to stab at a process with no idea of the values needed to subtract to eliminate the recurring decimal. Many numerical errors were also made with the subtraction of decimals.
17b Factorising	Very few candidates picked up full marks on this question. One mark was often picked for just taking out the common factor, 5.
18 Circle theorems	Of the few candidates that did engage with this question, very few used circle theorems. Some incorrectly assumed isosceles triangles were present.
19 Area of a pentagon (triangle + trapezium)	Some candidates didn't get far as they tried to find the area of a trapezium without first using Pythagoras to find one of the missing sides. Others mishandled the surds but still were able to pick up a method mark. Despite these errors and many non-attempts, it was pleasing to see so many engaging with question and a number of fully correct responses seen.
20a Vectors	Not many candidates chose the correct solution, instead choosing a combination of +/- quarters and +/- fifths choices (however not many chose $\frac{4}{5}$ which was good to see)
20b	Most candidates were able to work with the ratio aspect of this question to get a mark for stating AQ, more often seen on the diagram. However, despite a fairly straightforward method for the last two marks, candidates struggled; errors included not halving their expression, negating the vector direction or collecting 'b' terms.
21a Velocity time graph	A small handful of candidates were able to draw a tangent. None of these correctly calculated the gradient from this.
21b	A few candidates realised that the gradient represented acceleration.
21c	A handful of students got a perfect solution which was nice to see. Most other candidates didn't know where to start.

22a Tan graph	Very few attempts. Of those that did, sine, cosine and even straight line graphs were seen. Of those who attempted to draw a tangent graph often missed out asymptotes. Of these, some candidates did pick up 1 mark for the correct shape of their graph.
22b	Very few attempts. Of the ones that did make an attempt, very few had success, some getting 1 mark for two angles correct.
22c(i) Transformation of graphs	Again, very few attempts and those that did, did not realise it was a translation and in the positive x direction.
22c(ii)	Similar to c(i) in terms of success, hardly any candidates picked up both marks

MATHEMATICS

GCSE

November 2025

HIGHER TIER: COMPONENT 2

Overview of the Component

This unit tested the content of topics from the full specification. The paper was set with questions of increasing difficulty and in a variety of styles accessing all three assessment objectives.

Questions within the paper were comparable with those asked previously with the paper being a fair test for the candidates at this level.

All candidates seemed to have sufficient time to answer those questions that were within their capabilities.

Key areas for improvement include the following:

- The multiplication law for independent events (Question 2).
- The area of sectors of circles (Questions 3 and 17).
- Using Pythagoras' theorem (Question 4(a)).
- Trigonometry (Questions 4(b)).
- The interpretation of cumulative frequency curves (Question 12(b)).
- The expansion of brackets (Question 14).
- Box-plots (Question 15).

The following topic areas were generally well-understood or well-answered:

- Simplification of expressions using the laws of indices (Question 8(a)).
- Using the line of best fit on a scatter diagram (Question 12(b)).
- The basic use of currency exchange rates (Question 10).

Comments on individual questions/sections

Question	General comments
1. Ratio	(a) The majority of candidates failed to appreciate the need to scale the ratios so that the value used for b in both ratios was the same.
2. Probability	Many candidates do not understand the multiplication law for independent event and simply calculated $\frac{1}{6} + \frac{1}{6}$.
3. Pressure	The majority of candidates were unable to calculate the area of a semi-circle.

4. Pythagoras / Trigonometry	(a) Many candidates were unable to use Pythagoras theorem correctly on the given triangle. (b) Many candidates knew that trigonometry was required but very few were able to select and correctly use the required ratio.
5. Repeated proportional change	(a) One mark was often gained for calculating 104% of 24 000. Around half the candidates either added 720 more runners per year, not appreciating the compounding nature of the question, or worked on a year-by-year basis and lost marks due to inaccuracies. At this level we expect the use of 1.04^8 which was demonstrated by the better candidates. (b) Candidates must give an assumption that was used to answer the question and not simply discuss the methods they employed to answer it.
6. Angles in polygons	A minority of the candidates were able to calculate the interior angle of a regular pentagon. Not all that managed this then went on to add the 60° for the equilateral triangle.
7. Transformati ons	(a) The use of tracing paper should enable candidates to answer this correctly. (b) Appropriate language must be employed: reflection and the equation of the line of symmetry were required. Only a few candidates managed this.
8. Simplifying / solving an equation	(b) The majority of candidates were unable to deal with the removal of the fractions by multiplication through by 35 or 'cross-multiplication'.
9. Identifying graphs	Too many candidates were unfamiliar with the general shapes of curves. Too many answers appeared to be random guesses.
10. Exchange rate and unit conversion	Candidates were able to deal with the currency exchanges, but many failed to compare the cost of similar quantities of coffee.
11. Simultaneous equations	Well answered by those that understood the process.
12. Scatter diagram / cumulative frequency curve	(a) Few candidates appreciated that the line of best fit should pass through the point of the means. (b) One mark for the calculation of 70% of 120 was quite common. Most candidates failed to appreciate that the mark achieved by only 30% of the 120 students was the one required. Too many candidates showed no understanding of the topic at all.
13. Upper / lower bounds	The use of the two upper bounds was required but rarely seen.
14. Proof	Too many candidates made errors with the expansion of the brackets. $16y^2 + 9 - 15y^2 + 6y + 72$ was sadly too common.

15. Box plots	The basic format of a box plot was not understood by many candidates. The application of the division of the population into quartiles proved a challenge for all but a very few.
16. Velocity - time graph	Very few candidates understood that the area under a velocity-time graph gives the distance travelled.
17. Perimeter of sector	Candidates were often able to use the relevant circle theorem to find the 82° but were then unable to calculate the length of the arc or the perimeter of the sector. Many candidates found the perimeter of the triangle.
18. Product rule for counting / probability	Candidates seemed unsure how to use the number of counters that can be chosen at each step to answer the questions.
19. Iteration	(a) In a 'show that' question it is vital that each step of the rearrangement is given. (b) This was quite well answered although the notation seemed unfamiliar to many candidates.
20. Simplifying algebraic fractions	Candidates were able to gain marks for the factorisation of the terms and the knowledge of the process for division of fractions. Only a few candidates managed to complete all the steps required to obtain the final simplified answer.
21. Sine / cosine rule	A very standard question employing both the Sine rule and the Cosine rule. Only a minority of candidates appeared familiar with these.
22. Similar volumes / areas	A minority of candidates were able to use the formula for the surface area of a sphere to calculate the radius of sphere B. Of these candidates, many then incorrectly took the volume of sphere A as 60% of the volume of sphere B and failed to gain any further marks.
23. Functions	Function notation was understood by only a few candidates. In (b) candidates were expected to show full working for the application of the quadratic formula.
24. Equation of a circle / area of a triangle	Few candidates understood that the circle had a radius of 6 units. Calculating the angle POS then proved too much of a challenge for many of these candidates.

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