

GCSE Examiners' Report

Mathematics

GCSE

Summer 2026

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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
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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

It was pleasing to see an improvement in the attempt rate of each question. However, due to the nature of the cohort, many foundation tier candidates struggle to engage with many of the questions that are common to higher tier.

At foundation tier, accuracy of calculations on the non-calculator paper continues to be a weakness.

When candidates have a calculator, they must ensure they work exactly and efficiently. Too often values were being rounded prematurely, and accuracy marks were lost. When calculating a fraction of an amount on foundation tier, often candidates were obtaining the decimal, (rounding) and multiplying. Whilst this is a correct method, the rounding can often lead to an inaccurate answer. On higher tier, premature rounding impacted many answers, including those from Pythagoras, trigonometry and density. On the calculator paper, the non-calculator method of partitioning, rather than direct calculation is frequently employed when calculating a percentage. This can often lead to errors. With repeated percentage change, it is more efficient to use a power rather than repeated calculations, which are time consuming and are also prone to premature rounding errors.

There will always be questions that some candidates are unable to answer. However, all candidates should be encouraged to answer any multiple choice questions, regardless of where they are located within the paper.

Multi-step questions will always be asked. Candidates must organise their work in a logical way, ideally with labels or subheadings. The final answer should always be clearly identified.

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FOUNDATION TIER: COMPONENT ONE.

Overview of the Component

In this paper candidates are assessed on their ability to use and apply standard techniques without a calculator. They must reason, interpret and communicate mathematically as well as solve problems in mathematical and other contexts.

To do well in this examination, candidates needed to interpret each question carefully and make sure they used all the given information, particularly key words, and phrases, in their solution. They should have shown all their methods. The candidates who used efficient methods and presented their work in a neat and logical way were generally more successful. Many candidates were able to access a good proportion of the paper. However, a significant number of candidates struggled to access the questions that are common with the higher tier paper.

Some of the topics that candidates struggled with the most included forming and solving equations/expressions and drawing and interpreting bearings.

Comments on individual questions/sections

Q.1 (a) Writing a number in figures	Generally answered well, an occasional misplaced comma. A small number of candidates did not understand place value columns and gave an answer of 65 000 43.
Q.1 (b) Subtraction	Generally answered well, however the answer was occasionally contradicted by writing -272 instead of 272.
Q.1 (c) Rounding	Common incorrect responses were 8000 and 347 500.
Q.1 (d) Place value	Many candidates gave the place value of the 5 in the original number and forgot to divide by 10.
Q.1 (e) Listing factors	A good proportion of candidates were able to list the four correct factors, some candidates missed a factor, the inclusion of 3 as a factor was a common error.

Q.1 (f) Multiples	Generally, well answered.
Q.1 (g) Multiplying negative numbers	Around half of candidates answered this correctly, the most common error was the inclusion of a minus sign.
Q.2 Scale/algebra	Less than half of candidates answered this fully correctly. It was common to see an answer of 100g (ignoring the mass of the tray). Many candidates misread the scale and used 120g for the tray instead of 140g.
Q.3 (a) Using symbols	Just over half of candidates answered this correctly.
Q.3 (b) Writing a fraction as a percentage	Not many candidates could convert $\frac{6}{8}$ into a percentage.
Q.4 Interpreting negative numbers in a context	In part (a) many candidates did not refer to 'below sea level' which was what was required to gain the mark. Some simply restated the title of the table whilst others referred to the place being underground or under the sea. Part (b) was the most successfully answered part of this question; many candidates were able to identify the correct location. A common incorrect response in part (c) was 17, from simply subtracting 18 from 35 instead of looking at the difference between -18 and 35.
Q.5 Probability scale	Nearly all candidates attempted all parts of this question, part (b) (probability of zero) was answered correctly a significant number of times more than part (a) and part (c).
Q.6 (a) Perimeter	Whilst candidates were keen to attempt this question there were less than a third who had a fully correct answer. Common mistakes included adding the internal lines, leaving out the unlabelled side and using 4.5 as the unlabelled side (from $9 \div 2$).
Q.6 (b) Area	Candidates were less successful in part (b) than part (a). 17×9 was a common error.
Q.7 Fraction of an amount problem	Most candidates attempted this question and whilst a fully correct answer was not always seen, part marks were often gained. Many were able to calculate $\frac{1}{4}$ of 2400 correctly, following this it was common to subtract 600 from 2400 and calculate $\frac{3}{10}$ of the remaining money instead of the original amount. .
Q.8 Pictogram	A good number of candidates were able to identify the correct key for the pictogram, but they were not all able to show adequate calculations to prove the total number of students was 93. Most simply wrote the total for each day at the end of each row of the table.

Q.9 (a) (i) Solving an equation	Well answered. Some arrived at the correct answer by rearranging, others provided an embedded answer.
Q.9 (a) (ii) Solving an equation	Well answered. Some arrived at the correct answer by rearranging, others provided an embedded answer.
Q.9 (b) Forming an expression	This was very poorly answered. It was rare to see a correct expression. Occasionally an expression with omitted brackets was given e.g. $x + 4 \times 8$.
Q.9 (c) Collecting like terms	Most candidates had some success with this question. They could usually get one term correct if not both. Where there was a mistake with one term, it was usually the $-5d$. $+11d$ or $+5d$ were common.
Q.10 (a) Conversion graph	Candidates had more success in reading the horizontal scale than the vertical scale and often obtained the correct answer in part (a).
Q.10 (b) Conversion graph	Whilst a good number of candidates realised they had to partition 13 kg into e.g. $2 \times 5\text{kg} + 3\text{kg}$ to read from the graph, they could not successfully interpret the scale. Most candidates read one small square as 0.1 instead of 0.2.
Q.11 (a) Reducing by a percentage	The correct answer to this question was seen a pleasing number of times. Occasionally 15% was calculated and not subtracted from £300 correctly.
Q.11 (b) Percentage loss	Part (b) was not answered as well as part (a), many struggled to interpret percentage loss. 60% was sometimes given as the final answer instead of 40%.
Q.12 Problem	Candidates found it difficult to recognise the ratio 1 : 2 in this question, with most simply subtracting 12.5 from 35 and dividing by 2 instead of 3. It was common to see an incorrect answer of 11.25.
Q.13 Scale drawing with measuring	A good number of candidates were able to measure the height of the wardrobe within a satisfactory tolerance and just over half were able to correctly use the scale to convert to metres. Some stopped short of the conversion to metres and left their answer in cm or incorrectly converted to metres.
Q.14 (a) Factorising	Around one third of candidates could factorise correctly.
Q.14 (b) Expanding	Around half of candidates could expand the bracket correctly.
Q.14 (c) Terminology	Just under half of candidates could correctly identify 'expression'.
Q.15 Function machine	Both parts (a) and (b) were generally answered well by candidates. In part (b), an embedded answer of 5 was sometimes seen but then contradicted by e.g. $n = 11$.

Q.16 Forming and solving an equation	This was not answered well. Many were simply using trials to attempt to find a correct answer. The presentation of answers for this question was generally poor with various calculations seen all over the page. Some candidates did interpret the problem correctly and went straight to $42.60 \div 6$ (the cost of 1 burger).
Q.17 Straight line graph	Candidates had the most success in part (a) of this question. The most common error was incorrectly calculating y when $x = -1$. In part (b) there were often attempts at plotting 'their points', but the scale was usually interpreted incorrectly and so their positions were incorrect. Part (c) was rarely correct.
Q.18. (a) Ratio problem	It was rare to award full marks in this question; however, candidates could usually convert $\frac{3}{5}$ into 30ths to gain one mark. Some candidates attempted to work with percentages instead of fractions and usually made accuracy errors in doing this.
Q.18 (b) Percentage increase	An answer of £1.68 was common to see from use of 120% of 1.40 instead of 220% of 1.40.
Q.19 Translation vector	Not well answered, occasionally one element of the vector was correct, but it was rare to see a fully correct vector.
Q.20 Simple interest	Candidates that could correctly calculate 5% of 1500 usually went on to identify the correct number of years. Where repeated addition was used instead of a direct calculation there were sometimes errors in their calculations which meant full marks could not be awarded.
Q.21 Bearings	Very few candidates understood the concept of bearings, and it was rare to award marks. Occasionally one mark was gained for drawing one of the bearings correctly. Very few candidates could give a correct bearing in part (b).
Q.22 Estimating the mean/grouped frequency table	In part (a) candidates were expected to estimate the mean. On occasion the midpoints of the groups were identified but it was rare to see a fully correct method. Where a candidate got as far as, the sum of the frequencies multiplied by their midpoints, some divided by 5 instead of the total of the frequencies. In part (b) it was rare that the correct group was identified, most simply stated the middle group ($15 < t \leq 25$) from the table. Part (c) was mostly incorrect.

Q.23 HCF and LCM	This question proved challenging for foundation candidates, however, some could identify a common factor of 75 and 30. 5 was often given as the HCF instead of 15. They were usually more successful in identifying 72 as the LCM.
Q.24 Scatter graph	In part (a) candidates were keen to attempt a line of best fit, however, many did not meet the requirements to gain marks. Some started at the origin and so were not sufficient, others did not go through the mean point. Some candidates were able to use their line of best fit to calculate the charge for a job of 6.5 hours. In part (b) many candidates did not interpret the question correctly to identify the point that was being described. Many candidates attempted to use their line of best fit to find the cost of a 2hour 30-minute job instead of using the one that was stated.
Q.25 Standard form	Very few candidates could work with numbers in standard form and therefore did not make much progress with this question.
Q.26 Ratio problem	This question was not answered well by foundation candidates. Of those that did attempt it some converted into percentages.
Q.27 Proportional graph	Around half of candidates that attempted this question got it correct.
Q.28 Reverse percentage	Very rarely correct. Most foundation candidates did not recognise this as a reverse percentage question and attempted it as a percentage increase question.
Q.29 Pressure	In part (a) a small number of candidates were able to use the formula correctly to calculate the area, but very few could progress beyond that. It was rare to see a correct expression in (b)(i). Many candidates did not attempt part (b).

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FOUNDATION TIER: COMPONENT TWO.

Overview of the Component

Candidates were allowed to use a calculator for this paper, but some chose to use non calculator methods. For example, in question 12(b), some candidates used a partitioning method to find 14% of $12 \times \text{£}39.84$ instead of an efficient calculator method. Similar approaches were observed in question 24. When this method was used, numerical errors and premature rounding were often present.

Where a question required a candidate to calculate a fraction of an amount, they were expected to use the exact fraction and not a rounded or truncated decimal or percentage value. Doing so led to a prematurely approximated answer, which was not awarded full marks.

There were various questions on this paper that involved calculations with money. Whilst these were generally answered well, incorrect money notation sometimes meant that accuracy marks could not be awarded, for example, writing 35p incorrectly as 0.35p. There were several multi-step problem-solving questions throughout the paper. Candidates needed to use strategies to extract the relevant information from the question for each stage of the solution and to label each stage of their working appropriately.

Topics that proved particularly challenging to candidates were vectors, transformations and standard form.

Comments on individual questions/sections

Q.1 (a) Money calculations	This was well answered, many candidates arrived at the correct answer and gave correct units. A common mistake observed was the use of one letter instead of six letters. Most candidates were able to change between pence and pounds easily.
Q.1 (b) Money calculations	Nearly all candidates that attempted this question had the answer correct. The answer was sometimes embedded in a calculation.
Q.1 (c) Calculating savings	This was well answered; however, some candidates only gained one mark. An answer of 48p (10% of the cost of one polo shirt) or £21.60 (the total paid with discount) were common responses.
Q.2 (a) Number line	7.4 was seen a pleasing number of times with an answer of 7.2 being the common incorrect response.
Q.2 (b) Rounding	This was not well answered. 6351 and 6399 were among some of the incorrect responses seen.

Q.2 (c) Equivalent fractions	This was generally well answered.
Q.2 (d) BIDMAS	There were a variety of different responses to this question. The most successful candidates were those that referred to BIDMAS and the correct order of operations e.g. 'he should have multiplied before subtracting'. Candidates that simply stated 'the answer should have been 3' did not gain the mark without further explanation.
Q.3 (a) Calculating angles	This was generally well answered; e was correct more often than f. Some candidates incorrectly subtracted e from 360 instead of 180.
Q.3 (b) Calculating angles	Candidates found the calculation of y (angles in a triangle) more accessible than the calculation of x. Some candidates did not connect the right-angles in a rectangle to the calculation of x.
Q.4 Bar chart and mode	Generally, candidates were successful in gaining most marks for this question. Where there was an error, it was usually in either the Lemon or Other value, but they followed through for a correct value for Cherry. In part (b) candidates usually selected the correct modal choice.
Q.5 (a) (i) Measuring a line	Generally well answered, with an answer within an acceptable tolerance.
Q.5 (a) (ii) Measuring an angle	Not as well answered as (a)(i) (measuring a line segment) but it was measured correctly a pleasing number of times.
Q.5 (b) Metric conversions	Less than half of candidates were able to select the correct two measurements.
Q.5 (c) Rotational symmetry	Less than half of candidates selected the correct shape.
Q.6 Solving equations with diagrams	Candidates found this question very accessible; a large proportion were able to calculate the correct answer for each sticker. There were a lot of errors with units e.g. 0.35p instead of £0.35.

Q.7 (a) Number patterns	Candidates were generally successful in continuing the pattern and giving the correct values in the table. Common incorrect pattern number of 7 was sometimes given as they continued the pattern without realising there were missing values.
Q.7 (b) Number pattern rule	This was not well answered. A common error was $10 \times \text{pattern number} + 3$. Starting with 10 given in the table and recognising the pattern was +3 each time.
Q.8 (a),(b) Frequency tree diagram	Part (a) was usually correct. In part (b) a common incorrect answer was 49/58 (using the first-year total not the overall total).
Q.8 (c) (i) Simplifying a ratio	Candidates could usually select the two correct values from the table but then did not simplify or did not fully simplify. The most common final answer was 18:135. Some candidates included units in their final answer and so were not awarded full marks.
Q.8 (c) (ii) Finding a number as a percentage of another number	Not well answered. Common errors include $1100 \div 66 = 16.6\%$ or $66 \div 100 \times 1100 = 726$.
Q.8 (c) (iii) Comparisons using percentages	It was common to see candidates try to calculate 55% of either Ruth's monthly rent of £540 or expressing Ruth's rent as a percentage of 1100. A comment referring to 'not knowing Keiron's monthly living expenses' was required for the mark.
Q.9 (a) (b) Substitution into a worded formula	In part (a) candidates could successfully substitute into the formula and calculate the price of a bag of apples. However, they often included incorrect units in their final answer. Less than half of candidates could rearrange the formula to calculate the packaging cost in part (b). It was common to see $\text{£}8.90 \div 11$.
Q.10 (a) Fraction of an amount	Of the candidates who correctly calculated $\frac{3}{7}$ of £861, some went on to subtract their answer from the total, giving the cost of accommodation instead of flights. Some candidates converted the fraction to a decimal or percentage and rounded or truncated this before completing their calculation, this meant their final answer was inaccurate.
Q.10 (b) Exchange rates	This was generally attempted well, where a candidate selected multiplication, the answer was usually correct. The common error was dividing by the exchange rate.
Q.11 Types of number	Candidates found it challenging to find three values to fit all the conditions given in the question. They could usually identify either a prime number or a square number. Some also went on to select other values which gave a sum of 80. However, some candidates did not select values between 20 and 40.
Q.12 (a) Best value	The most common strategy seen was calculating the cost of 1kg of each bag of dog food. These were often evaluated correctly but some candidates then went on to select the wrong bag.

Q.12 (b) Calculating a discounted cost	Most candidates calculated the cost of twelve 8kg bags of dog food but did not successfully engage with the percentage discount. Where an attempt was made to calculate 14%, it was often a partitioning method and so there were premature rounding errors. Many candidates did not go on to subtract the discount from the overall cost.
Q.13 (a) Probability table	This was well answered.
Q.13 (b) Adding probabilities	Candidates could usually select the correct probabilities from the table to sum. However, they could not always successfully convert to a fraction and simplify it. It was common to see an answer of 0.48.
Q.13 (c) Proportion with probabilities	Candidates found this question challenging, it was generally fully correct or incorrect. Some candidates simply calculated 0.2×170 .
Q.14 Sharing in a ratio	This was mostly well answered. The common incorrect answer was $774 \div 8 = 96.75$.
Q.15 Lowest common multiple in context	A good proportion of candidates were able to calculate the correct time. Occasionally they identified 72 as the LCM but did not go on to state the correct time. Those candidates that listed times, often made errors when adding multiples of 24 minutes for Velma.
Q.16 (a) Criticising a questionnaire	Less than half of candidates could verbalise a coherent criticism of the questionnaire. Of those that identified overlapping boxes, some spoilt their answer by saying 18 and 60 were also overlapping. A good proportion of candidates stated that age was an irrelevant factor for the questionnaire. Many candidates stated there was not an option for right-handed people, this was not enough to gain the mark, however, if they stated 'some people are ambidextrous so wouldn't know what to tick' they were awarded the mark.
Q.16 (b) Percentage of an amount / assumption	Part (b)(i) was generally well answered; however, a common error was multiplying 31250 by 0.8 instead of 0.08. In part (b)(ii) candidates generally restated the answer of 2500 that they calculated in (b)(i). Very few stated that they had to assume the 8% was representative of the population to be able to calculate the answer in the first place.
Q.17 Mean and median problem	It was rare to see a fully correct response to this question. Candidates could sometimes identify 15 as one of the cards. $14 \times 6 = 84$ was often seen and this sometimes led to two cards with a sum of 41.
Q.18 (a) Using a calculator / rounding	The most common error in this question was an answer of 1.24 from truncating instead of rounding.

Q.18 (b) Rounding to significant figures	Less than a third of candidates could correctly round this number to two significant figures.
Q.18 (c) Standard form	Most candidates struggled with the concept of standard form.
Q.19 (a) Describing a transformation	Candidates could sometimes identify that it was an enlargement but often spoilt their answer by including a different transformation as well. They often stated the shape was '3 times bigger' or 'multiplied by 3' but did not use the term scale factor. It was rare to see a correct centre for the enlargement.
Q.19 (b) Rotation	This was not well answered. It was clear many candidates did not understand how to rotate about a given point.
Q.20 Ratio problem	Most candidates engaged with this question and there were various approaches. It was common to award a mark for 4:44. Some candidates went on to calculate $200 \div 12 = 16.6\dots$ but then did not round down to 16 before multiplying by 11. This led to a common incorrect answer of 183.3... Some simply calculated $200 \div 11$ and did not engage accurately with the ratio.
Q.21 Column vector	It was rare to see a correct answer.
Q.22 (a) Circumference problem	Very few candidates engaged with the circumference of a circle. It was rare to award marks.
Q.22 (b) Finding a number as a percentage of another number	Candidates engaged slightly more with part (b) than part (a). However, very few arrived at the correct answer. A common error was an answer of 3.1 or 310% from $7.75 \div 2.5$.
Q.23 (a) Expanding double brackets	Not well answered.
Q.23 (b) Changing the subject of a formula	Very few gave a fully correct answer, but occasionally a mark was awarded for a first correct step e.g. $9y = 11 - 8x$. A common incorrect first step was $8x - 11 = 9y$.
Q.23 (c) Indices	Commonly answered as c^8 , adding powers instead of multiplying powers. Where a candidate did engage with multiplying the powers an answer of $15c$ was sometimes given.

Q.23 (d) Converting metric units of area	This was not well answered. The most common incorrect response was 100x.
Q.24 Volume / compound percentage decrease	Many candidates could correctly calculate the volume of the box, but very few engaged with a compound percentage decrease method. They commonly calculated 35% of the volume or decreased the volume by 35%. Those who did not calculate the volume correctly, usually added the dimensions to get an answer of 66 as their volume.
Q.25 (a),(b) Tree diagram	The attempts at completing the tree diagram in part (a) have improved since previous series. Many were writing probabilities as fractions instead of writing integers (which has been the case in previous series). It was rare to award marks in part (b). Those who attempted this part of the question commonly added the branches instead of multiplying them.
Q.26 Forming and solving an inequality	It was rare to see a fully correct response to this question. Whist some candidates could state $7n$ and $n + 62$, very few could state the inequality. It was also common to see a candidate working with a mixture of pence and pounds e.g. $7n$ and $n + 0.62$. Of the candidates that did state a correct inequality, they usually found 11p through trials instead of formally solving the inequality.
Q.27 Pythagoras theorem and trigonometry	Very few candidates engaged with Pythagoras or trigonometry and so made no progress on this question. Of those that did recognise this was a Pythagoras and trigonometry question, they were mostly successful in calculating the 16.5 through Pythagoras, but this was rare.

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HIGHER TIER: COMPONENT ONE

Overview of the Component

The content of topics from the full specification has been tested with this component. 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 questions did not deter candidates. It was pleasing to see so many full, accurate solutions for these more demanding questions.

It was pleasing again to see attempts at many questions. However, a lot of candidates are showing lots of working for some of the longer questions but with no clear indication of which solution is being presented. It was disappointing to still see so many embedded solutions within working as opposed to signposting the correct answer as the last thing written.

It was also disappointing to see many candidates still not taking on board the direction 'you must show all your working' or 'you must use an algebraic method'

In addition, many candidates are still showing a general lack of basic numerical or algebraic skills. Robust checking processes could have helped these candidates, and these were occasionally present in their work. However, candidates must be made aware that these written checking processes in the working space must not detract from the unambiguity of the final answer being presented.

Numerical skills

Candidates were hindered by lack of numerical skills with a number of questions, including:
Question 1 – multiplication and division slips made with mean from grouped frequency table
Questions 3 – slips in producing lists of multiples as their method for finding the lowest common multiple

Question 4 – multiplication of decimals

Question 6(a) not realising the need to round values to 1 significant figure. Those candidates that did, could not divide 5 by 0.2. There was a lack of knowledge shown by many in handling the power 0 and term reciprocal.

Question 8a – standard form – especially disappointing as this must be asked on a non-calculator paper and this question was context free.

Question 8b and c – working with integer and fractional powers

Question 18 – basic surd manipulation

Question 19 – basic lack of knowledge of squares and primes less than 10 caused marks to be lost on this 'product rule for counting' question

Question 23 (a) and (b) some basic errors in evaluating 3^5 and $8^2 + 5$ were common to see.

Algebraic manipulation

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

Question 2 - forming and solving an equation – despite misunderstanding of where to start with this question, there were still too many basic algebraic slips seen in working

Question 14 – squaring a bracket

Question 17 - changing the subject of a formula (multi step - higher grade)

Mathematical knowledge

There seemed to be fewer questions this series that candidates could not access. This was pleasing to see.

The following list highlights the questions that stood out in terms of responses showing non or poor attempts by many candidates.

Question 11 – reverse percentage – not knowing the standard method of ‘dividing by the percentage worth of current price as a decimal’ to get the original value.

Question 14 – how to demonstrate a full algebraic proof

Question 15 – finding the median and quartiles from a cumulative frequency graph and using these values to accurately draw a box plot.

Question 16 – how to apply circle theorem rules, especially use of the alternate segment theorem

Question 20b - misunderstanding what was required for a ‘full geometric solution’

Question 23c – how to find the inverse function

Question 24 – lacking in knowledge or practice in use of coordinate geometry skills for a multi-step problem.

Checking processes

Checking processes were again 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.

Comments on individual questions/sections

Q.1 (a) Mean from grouped frequency	Well attempted with many candidates picking up marks. Usual errors – incorrect midpoints and dividing by the number of groups.
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Q.1 (b) Median group	Many candidates incorrectly choosing the middle row.
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Q.1 (c) Interpret table	Misunderstanding - phone calls in middle group should have been included
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Q.2 Form and solve equation	Many candidates misunderstood how the pyramid was formed and so produced the wrong initial equation. This, along with algebraic errors along the way meant that very few obtained full marks.
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Q.3 (a) HCF and LCM	It was pleasing to see a lot of marks gained on this question however still many candidates lacking in basic number skills. This, together with either getting the HCF and LCM mixed up, not realising the unlikelihood that a prime number would not be the HCF and finally mistakes in multiple lists, meant marks were lost for a large number of candidates. Many candidates fully engaging with the question failed to simplify their ratio for the final mark.
Q.3 (b) Powers and square numbers	This question was poorly answered. It seemed to be pure guess work for many with this question, not realising that they needed to divide by 2×5 to make the powers even.
Q.4 Multiplying probabilities	Many candidates with full marks but there were still a number either not attempting to calculate 0.1^3 or calculating it incorrectly. A few lost a mark by adding a '%' sign at the end of the correct answer.
Q.5 Perimeter of quarter circle	Good attempts at this question with the radius often being correctly found. The second half of the question proved more tricky.
Q.6 (a) Estimation	Most candidates picked up at least one mark on this question. Still mistakes being made on this 'very frequently asked' type of question. The cube root of 62.8 caused candidates the most problems. Also many fell down on the final evaluation of $5 \div 0.2$.
Q.6 (b) Power '0' and reciprocal	A lot of candidates picked up 1 mark either for knowing the value of x^0 or dealing with the reciprocal. It was pleasing to see a number picking up both marks.
Q.7 (a) Scatter graph	Many produced 'suitable' lines of best fit for the first mark but few picked up the second mark for their line going through the mean point. The most common 'unsuitable' line drawn went through the origin. Some candidates unfortunately lost marks from drawing a very poor line by not using a ruler. Many candidates went on to use their suitable or unsuitable line of best fit to correctly estimate the cost for 6.5hrs.
Q.7 (b) Call out charge calculation	Again, well attempted but a number calculated the charge for 2.5 hours instead of 3 hours.
Q.8 (a) Standard form	This question, despite being straightforward, caused a surprising number of problems for candidates. This topic needs to be assessed on a non-calculator paper so it was disappointing to see so many tackling this with a lack of standard form knowledge.
Q.8 (b) Using indices and standard form	A lot of full marks were gained here, but a number of candidates left their answer in standard form rather than an ordinary number as the question asked.
Q.8 (c) Power $\frac{1}{2}$	Not many candidates knew how to handle numbers to the power $\frac{1}{2}$. A lot picked up just 1 mark.

Q.9 Ratio	Many candidates worked well with the information given in the question and were able to pick up at least one mark. It was pleasing to see a large number of candidates gaining full marks.
Q.10 Recognising a graph of direct proportion	A wide spread of incorrect answers being chosen here. Again, some blank responses seen.
Q.11 Reverse percentage	This was one of the least successfully answered questions on the paper with very few candidates recognising the need to divide by the current price by its percentage worth as a decimal. Many candidates that were able to complete the first step successfully were able to manage the second step too.
Q.12 (a) Use of pressure formula to find area and volume	It was common to see 2 marks picked up for the first part of this question to calculate the area of one face. The next step was less common to see being executed but it was pleasing to see a number of fully correct answers.
Q.12 (b) (i, ii, iii) Distribution of pressure on ground	Nearly all candidates had an attempt at these three parts. (i) An incorrect $2p$ was seen more often than the correct $p/2$. (ii) and (iii) despite (i) not being well answered, those that were successful at describing the assumption in (ii) also picked up the mark in (iii).
Q.13 (a) Nth term of a quadratic sequence	Not many gave the fully correct answer here. $\frac{1}{2}n^2$ was occasionally seen for 1 mark but n^2 was more common which unfortunately picked up no marks.
Q.13 (b) Surd sequence	This question was successfully answered by many although their final answer was difficult to pinpoint on occasions. Some candidates went further to find the 6 th term. It was often unclear what term was actually being presented as their final answer.
Q.14 Surd sequence	Many successful attempts were made at this question with 2 out of 3 marks picked up. A rigorous proof using 'odd' and 'even' was infrequently seen.
Q.15 (a) (i) Interpreting a cumulative frequency graph	This was well answered. A few candidates thought the total number of candidates was the highest value on the axis as opposed to the highest value on the graph.
Q.15 (a) (ii) Drawing a box plot	Nearly all candidates attempted this question although very few picked up full marks, most of these losing marks on the median and quartiles.
Q.15 (b) Interpreting a box plot	Again, nearly all candidates attempted this question but very few picked up full marks.

Q.15 (c) Criticising a cumulative frequency diagram	This was the least successfully answered question on the paper with just a handful of candidates correctly describing the 'lack of use of upper bounds' as the criticism. Common incorrect statements seen were 'not starting at 0' and 'should have used midpoints'.
Q.16 Circle theorems	It was pleasing to see a number of candidates attaining full marks on this question (including correct descriptions for the circle theorems used). The most common mistake was at the start where the candidate used 'alternate angles' to find the wrong first angle despite no parallel lines present on the diagram. This meant that only the final mark was then available.
Q.17 Changing the subject of a formula	This was not well answered despite it being a standard expansion and then factorisation. Many candidates just picked up one or two marks at most before 2 errors inhibited any further marks being awarded.
Q.18 (a) Simplifying surds (a)	This part was answered correctly by many candidates.
Q.18 (b) Simplifying surds (b)	Many candidates picked up at least one mark here. Very few candidates were able to pick up both of the first two marks and so made the division to obtain the decimal almost impossible.
Q.19 (a) Product rule for counting – 2 padlocks	It was disappointing to see so many candidates not knowing their square and prime numbers below 10. Other misconceptions including, adding numbers, use of fractions and also thinking there were only 9 instead of 10 digits on the first reel. Despite this, many candidates picked up at least some marks. Very few gained full marks.
Q.19 (b) Product rule for counting – single padlock	This was not well answered with the common incorrect answer being $10n$ as opposed to 10^n . This was the second least successfully answered question on the paper.
Q.20 (a) Vectors(a)	This was a straightforward question yet still many candidates did not negate the first vector. Despite not getting the first two marks, many candidates went on to deal with the ratio correctly and were able to pick up the last two marks.
Q.20 (b) Vectors(b)	For those candidates that fully engaged with the question, many went on to correctly obtain the vector BC, but few candidates were able to explain the full geometric relationship. Many of these candidates simply went on to show DE was a multiple of BC, but did not mention 'length' and/or 'parallel'.
Q.21 Estimation of acceleration from a graph	Despite overall lack of success with this question, more tangents were seen than on previous papers. This was pleasing to see. Many of these candidates then went on to correctly calculate the acceleration and so gain full marks. There were still a large number candidates proceeding to try and find an estimate without drawing a tangent on the graph, gaining 0 marks.

Q.22 Recognising graphs	Nearly all candidates had a good attempt at this question with many picking up one or two marks. Very few picked up all 3 marks. Some candidates chose the same sketch for more than one equation which meant that no marks could be awarded for that sketch.
Q.23 (a) Functions (a)	This was well answered, many picked up both marks. Some however, were disappointingly not able to evaluate 3^5 only obtaining one mark.
Q.23 (b) Functions (b)	This was similar to (a) with many candidates picking up at least one mark – unfortunately quite a few numerical errors were seen here.
Q.23 (c) Functions (c)	This part was less well answered which was a shame for a fairly straightforward functions question. Only a few of those that managed to find the inverse function went on to correctly equate to $2x$ and solve.
Q.24 Coordinate geometry	A number of candidates were able to pick up the first three marks for the x-value of point A, either by use of a formal method or by inspection of the diagram. Some then had an attempt at the next part but were less successful. However, there were a number of candidates gaining the full 7 marks on this question by use of formal methods. This was very refreshing to see for the last question on the paper.

MATHEMATICS

GCSE

Summer 2026

HIGHER TIER: COMPONENT TWO.

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.

It was pleasing to see a high level of engagement of the questions in this paper with attempt rates exceeding 90% for the first half of the paper, dropping to 67% for some of the later questions.

The use of a calculator is expected in this paper, but candidates are expected to show sufficient working to illustrate the method of solution they are employing. Questions 8, 14, 15, 20 and 21 are examples of questions where necessary working was sometimes omitted.

Candidates need to ensure that they read each question carefully and then re-read when they believe they have completed it. Question 15 was sometimes just answered as a 'best buy question and 24(b) was often answered in 24(a).

There were a number of multi-step problem-solving questions within the paper. Candidates were required to use strategies to extract the relevant information from the question for each stage. It is important that relevant values are labelled so that marks can be allocated appropriately and that the values are not lost in a 'jumble' of numbers.

Premature rounding needs to be avoided as a loss of accuracy at an early stage may result in a final answer that is out of tolerance. Questions 8 and 20 are examples of where this occurred.

Comments on individual questions/sections

Q.1 Vectors	Less than half of the candidates were able to answer the question successfully. Others reversed the x and y components or made errors with signs. A significant minority showed no understanding at all of vectors.
Q.2 (a) Circumference	Far too many candidates failed to comprehend that the question concerned the circumference of a circle. Area of a circle was often calculated, and 7.5 revolutions was often provided as the answer.
Q.2 (b). Percentage	Many good answers were seen here. The use of partitioning with percentage needs to have each step correct or the calculations given at each step, in order to gain any marks.

Q.3 (a) Expand and simplify	Well answered by the majority. Sign errors or numerical errors prevented other candidates from gaining full marks.
Q.3 (b) Change of subject	Well answered by the majority. Those that failed to gain both marks often gained a mark for a correct first step or a final answer that contained just one error.
Q.3 (c) Indices	Well answered by most candidates.
Q.3 (d) Area	Answered correctly by a minority of candidates. Candidates should be advised to use a simple diagram, in this case a square 100 cm by 100 cm, to assist when converting non-linear units.
Q.4 Population density	Most candidates engaged correctly with population density and gained at least one of the marks available.
Q.5 Leaking cuboid / proportional change	Well answered by many who used the efficient calculation of 8190×0.95^7 . A number of other candidates gained some credit for calculating 65% of the volume. Some candidates still produce hour by hour calculations, these need to be accurate or give the method for each calculation.
Q.6. Tree diagram	(a) was well answered by most candidates. (b) was again well answered by many and a number of other candidates were able to calculate one of the required probabilities. A surprising minority were unable to complete the tree diagram in (a) but produced a perfect solution in (b).
Q.7 Form and solve an inequality	A majority of candidates were able to obtain the inequality and start to solve. Those that did not obtain the inequality generally gave the two expressions $7n$ and $n + 62$. Quite a few candidates reached the stage, $n > 10.3$ and then failed to appreciate that the question concerned whole pence. A number of candidates mixed units and used expressions or inequalities containing $7n$ and $n + 0.62$.

Q.8 Pythagoras and trigonometry	There were many good answers achieved using the expected succinct approach. Those candidates that chose to employ more longwinded approaches sometimes lost out on the accuracy of their final answer.
Q.9. Loci / construction	Candidates do not find construction work easy. There were many inaccurate constructions. The minimum requirement was for an accurately drawn perpendicular bisector and an accurately drawn angle bisector. A reasonable number of candidates bisected the line joining the midpoint of the pavement to the midpoint of the boundary wall rather than construct an angle bisector.
Q.10 Plotting and using a cubic	Well answered in (a) and, in (b), there were a number of candidates that decided that straight lines were appropriate for the graph of a cubic. In (c) the line $y = 4$ was generally drawn but a number of candidates failed to correctly identify the three points of intersection with the curve.
Q.11 (a) Solving algebraic fractions	Many candidates were unable to successfully deal with the fractions. A common error was to fail to multiply all terms by the same number, $2x - 3 + x = \frac{5}{3}$ being a very common incorrect first step. Marks were awarded until the candidate made a second error, so many candidates were still able to gain some marks here. There were, of course, many correct responses.
Q.11 (b) Difference of two squares	Rather poorly answered with many candidates simply removing a linear factor. The difference of two squares should be recognised by all candidates working at this level.
Q.12 Mortgage payments / substitution	This question assessed substitution into the given formula followed by appropriate calculator work. Whilst most candidates attempted the question, there were errors with both substitution and the accuracy of the calculator work. A fair proportion of the candidates failed to deal with the need to calculate the total payment over the 30 years but stopped at the monthly payment.
Q.13 Transformation	A single transformation was requested so candidates that referred to enlargement and another transformation, lost the initial mark. The use of the appropriate terminology is assessed in questions such as this, so we require scale factor, or sf $-\frac{1}{2}$, and not by $-\frac{1}{2}$.
Q.14 Pyramid / density and dimensions	Most candidates were able to calculate the volume of the pyramid but only a minority were then able to calculate x , the length of the side of the base. Credit was given to those who could not remember the formula for the volume of a pyramid but calculated a value for x using of $k \times x^2 \times 35$ where $0 < k < 1$ and $k \neq \frac{1}{3}$.

Q.15 Bounds / better value	Candidates familiar with the use of bounds often went straight to use of 695 g and 405 g and showed that, in this case, Tub A was better value. A number of candidates used 404 g as the maximum mass of the contents of Tub A, this was insufficient. Others performed all 4 calculations using both the upper and lower bounds of both tubs but failed to identify which calculations were appropriate in their conclusion. A number of candidates did not show which calculations they were using. As answers from a variety of calculations were the same when given to limited degree of accuracy, this made the work demanding to assess.
Q.16 Circle theorems and arc length	Candidates familiar with angles in parallel lines and the circle theorems were quickly able to identify that $\angle CDE = 76^\circ$, $\angle COE = 152^\circ$ enabling them to calculate the length of the arc CE. For some candidates there was confusion between the arc CE and the line CE.
Q.17 Proportionality	Many good responses were seen using the standard approach to proportionality questions. A number of candidates gained some marks by using one of the incorrect proportionalities accepted in the mark scheme. A reasonable number of candidates showed little understanding of anything except direct proportion.
Q.18 Proportion problem	The question required candidates to identify that 24 hours of the 54 hours work needed to complete that task had been completed and that there were 30 hours remaining. Many candidates simply calculated how many workers were needed to complete the whole task in under 7 hours. Each worker completed 1.5 hours work was also a common response.
Q.19 Histogram	(a) Half of the candidates were able to answer this correctly. (b) This was answered well by the majority of the candidates. (c) The mean of grouped data is a familiar question at a lower level, here candidates needed to use the frequencies from (b) and the appropriate midpoints of each group. The midpoints were often the problem here for candidates that attempted this part. (d) There were many correct answers here, but a number of candidates correctly obtained the 52 people but then failed to calculate the required percentage.

Q.20 Area of a triangle / cosine rule	Candidates familiar with the cosine rule generally completed the question successfully. Many unfamiliar with the cosine rule were able to gain a mark by correct substitution, irrespective of the label they gave to the angle. Marks were gained on FT for the area calculation provided the 'angle' they derived was the appropriate one used in the area calculation. Candidates should be advised not to rearrange the formula before substitution since many rearranged incorrectly and did not gain any marks.
Q.21 Cluster flies / iteration	The notation for iteration caused problems for many candidates. Some ignored the notation and showed understanding by going straight to $70k^2 = 110$. Some candidates used trial and improvement but failed to both explain what equation they were solving or to 'home in' on the solution proving it to be nearer to 1.25 than 1.26.
Q.22 Similar solids, derive and solve the equation	(a) Candidates familiar with the scale factor for volume were generally able to make some progress here. A number of candidates attempted to solve the quadratic equation here. If this was not then seen or contradicted in (b), the appropriate marks were awarded in (b). (b) Many candidates were unable to solve the equation by use of the quadratic formula or by factorisation.
Q.23 Venn diagram notation	Candidates needed to appreciate that $P(A \cap B)$ is included in both $P(A)$ and $P(B)$, only a minority of candidates did so.
Q.24 Equation of a circle and simultaneous equations	Substitution of the linear equation into the equation of the circle was the obvious approach. A few candidates completed this successfully, but some stopped after the substitution. A very few candidates considered the gradient of the line and the gradient of the radius that would intersect it at right angles. These candidates then needed to show that the point of intersection was on the circle in the question.

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