GCSE Examiners' Report

Mathematics – Numeracy

GCSE

November 2024

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 unit.

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	WJEC 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.wjec.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 WJEC 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 unit level. For linear specifications, a single grade is awarded for the subject, rather than for each unit that contributes towards the overall grade. Grade boundaries are published on results day.	For unitised specifications click here: Results, Grade Boundaries and PRS (wjec.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	WJEC 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.wjec.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 WJEC subject page.
Become an examiner with WJEC.	We are potentially looking to recruit new examiners. These opportunities can provide you with valuable insight into the assessment process, enhance your skill set, increase your understanding of your subject and inform your teaching.	Become an Examiner | WJEC

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Executive Summary

The examination papers in GCSE Mathematics – Numeracy were generally of a similar standard to previous examination series. As is always the case, some questions were more demanding in some topics than in previous series, whereas others were less demanding. The higher tier papers were a little less demanding on the whole compared with previous series.

What was noticeable this series, as well as in other recent series, is that many candidates in year 11 are still showing signs of having been impacted by the pandemic, and there are gaps in their knowledge and understanding, which then cause problems with more demanding topics and skills. This is especially true of candidates hoping to achieve the middle grades in the grade range (E to B). There are some areas of the subject content that are not well-understood year on year. This year was no exception. Topics such as bearings, converting metric and Imperial units, pie charts, writing numbers as fractions or percentages of other numbers, and perimeter, area and volume have a great need for improvement at all tiers. Topics that need attention at higher tier include random sampling, standard form and working with bounds in more challenging questions. Other topics that are specific to units and/or tiers are listed in the individual unit reports.

At intermediate tier and higher tier, there was more evidence than usual of candidates rounding answers prematurely in multi-step questions, resulting in incorrect answers.

What is also evident is how little time many candidates spent learning facts and rules in preparation for these examinations. These include metric to Imperial conversions, formulae for perimeter, area and volume of shapes.

There was also evidence of candidates not using the calculators to their full potential on the calculator-allowed papers. There is a difference between showing your working and using non-calculator methods to carry out calculations. Candidates should remind themselves of this difference before taking these examinations.

At foundation tier, some improvement was seen when calculating with time, working with money and interpreting Venn diagrams. Other topics that were well-understood or well-answered are listed in the individual unit reports.

Our digital resources website has many blended learning lessons and knowledge organisers, amongst other things: Mathematics - Educational Resources - WJEC
You can filter to help find what you want. Some examples of blended learning lessons and knowledge organisers are listed below, as they have been indicated as areas for improvement.

Areas for improvement	Classroom resources	Brief description of resource
Fractions, decimals and percentages	Mathematics - Educational Resources - WJEC percentages.pdf (wjec.co.uk)	Number – knowledge organisers Knowledge organiser

	Fraction and percentage of an amount - Blended Learning	Blended learning lessons
Area, perimeter and volume	Mathematics - Educational Resources - WJEC area-perimeter-dimensions-and-volume.pdf (wjec.co.uk)	Geometry and Measures – knowledge organisers Knowledge organiser
	Area and perimeter, dimensions and volume - Blended Learning	Blended learning lessons
Angles (includes bearings)	ko-angles-intermediate-wjec.pdf	Knowledge organiser
	Angles - Blended Learning	Blended learning

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UNIT 1 FOUNDATION TIER

Overview of the Unit

Most candidates attempted all questions. Candidates were more successful with many of the earlier questions than with the later questions in the paper, as is expected.

Key areas for improvement include the following:
- Finding 10% of values such as £4.50
- Drawing a vertical line diagram
- Knowing the different types of angles and drawing angles accurately
- Changing units such as 206cm to metres
- Expressing a quantity as a percentage of another quantity
- Measuring bearings
- Finding the area of shapes such as a trapezium.

The following topic areas were generally well-understood or well-answered:
- Solving problems in the context of money
- Understanding the term 'modal' within a context
- Identifying and naming 3D shapes.

Comments on individual questions/sections

Question 1
In part (a)(i), many candidates did not complete the tallies for the extra visitors and some candidates did not even consider the extra visitors.

In part (a)(ii), very few candidates were able to draw a vertical line diagram with most drawing a bar chart or a line graph.

Question 2
In part (a), many candidates could not find 10% of £4.50 correctly. Some candidates interpreted the question incorrectly by adding a booking fee for each person.

Part (c) was answered well; however, several candidates could not subtract accurately, with many not knowing that they needed to 'borrow'.

Question 3
Candidates knew that they needed to subtract 1979 from 2024 in part (a)(i) but accuracy with the subtraction let many candidates down.

In part (a)(ii), the most common incorrect answer was 2.6m. Many candidates do not know the conversion from centimetres to metres.

In part (c), most candidates were able to gain at least 1 mark. This was often for 7.5cm or 14cm. Many candidates showed that they understood that the scale factor was 2 and therefore gained 2 marks. Very few candidates gained all 3 marks.

In part (d), it was disappointing to see that many candidates do not know the difference between an acute angle and an obtuse angle. Candidates also struggled with using a protractor correctly to draw an angle of 157°.

Question 4
In part (a), most candidates demonstrated that they do not understand bearings and, from those that did, they did not include a zero to write a three-figure bearing in part (i).

In part (a)(iii), very few candidates knew the conversion from miles to kilometres.

In part (b), candidates generally understood what they needed to do but reading the scale accurately hindered many.

In part (c), most candidates did not understand that they needed to divide the values; many candidates thought that they needed to add or subtract them.

Question 5
In part (b), some candidates used an incorrect strategy, dividing 280 by 3 instead of 4.

In part (c), many candidates could calculate 40 × 90p correctly but could not then state the percentage profit. 12% was the most common incorrect answer.

Question 6
In part (a), most candidates used an incorrect strategy. Some divided £10.50 by 3 and then stated that the pots cost £7 and the saucers cost £3.50, or they divided £10.50 by 2. Very few candidates were able to work with 2 pots for 80p and 1 saucer for 25p and build up to find the correct answer.

In part (b), some candidates demonstrated good understanding of best value for money. Most compared a common mass, but some worked with pairs eliminating the more expensive one.

In part (c), most candidates could not find the area of the trapezium. The most common incorrect answer for the area was from adding the 3 given measurements.
Many candidates did not know how to calculate the number of packets of seeds required for their area. Those that did often rounded the number of packets down.

Question 7
In part (c), most candidates did not understand the idea of grouped data and that exact times were not known.

In part (d), most candidates stated, ‘yes as the numbers were the same’. They did not consider the total number of pupils in each year group.

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UNIT 1 INTERMEDIATE TIER

Overview of the Unit

Most candidates attempted all questions. Performance was slightly better than expected in a number of questions, but not as good as expected in other questions. Candidates were more successful with many of the earlier questions than with the later questions in the paper, as is expected.

Key areas for improvement include the following:

- Calculating the area of a triangle, rectangle or trapezium, including composite areas
- Calculating the mean from a frequency table
- Expressing a quantity as a fraction or percentage of another quantity
- Interpreting box-and-whisker diagrams.

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

- Using proportion to solve a problem in the context of money
- Finding shares from a simple 1 : *n* ratio
- Making appropriate comparisons to establish best value for money
- Using exchange rates in real-life situations
- Interpreting basic tax bands in order to calculate income tax.

Comments on individual questions/sections

Question 1

In part (a)(i), many candidates did not include a zero to write a three-figure bearing, however a number of candidates did measure the correct angle.

Question 3

In part (a), many candidates used an incorrect strategy, such as dividing £10.50 by 3 and then stating that pots cost £7 and saucers cost £3.50, or they divided by 4, by firstly halving then halving again. However, many candidates were able to work with 2 pots for 80p with 1 saucer for 25p and build up to find the correct answer.

In part (b), many candidates demonstrated good understanding of best value for money, either by comparing a common mass, or working in pairs, eliminating the more expensive one.

In part (c)(i), some candidates did consider the trapezium, but there were many errors in calculating the area. When splitting into a rectangle and a triangle, many candidates omitted to halve 1 × 1.6. Other candidates found the sum of the lengths given instead of the area. Many candidates did not realise that seeds are sold in packets, and therefore it was not appropriate to calculate the cost of 1g of seeds.

Question 4

It was pleasing to see that many candidates understood that a frequency polygon displays grouped data and that comparisons should consider the number of pupils represented in each of the frequency polygons.

Question 5
This question was not well answered as many candidates did not understand the frequency table given. Common incorrect responses included $(0 + 1 + 2 + 3) \div 4$.

Question 9
This question was not well answered. Many candidates had no strategy to calculate the area of the cross-section, either by splitting the shape into 3 rectangles, or by subtracting the smaller rectangle the larger rectangle. Most candidates did not progress to use the idea that the depth is the volume divided by the cross-sectional area.

Question 10
In part (b)(i), a number of candidates were able to find the answer using a reverse method, starting with different possible values and increasing by 40%, rather than by using the method of considering £42 as being 140% of the original value.

Part (b)(ii) was not well answered. Candidates were awarded a mark for realising that volume is equal to mass divided by the density. However, many candidates did not write 6×10^{-3} as an ordinary number correctly and most candidates did not convert the units (g and kg) correctly.

Question 11
In general, many candidates were not able to interpret the box-and-whisker diagrams, apart from the range in part (a). Very few candidates selected the slender-billed gulls in part (d) and, of those candidates who did, many incorrectly selected the range as the measure used.

Question 12
In part (b)(ii), many candidates did not seem to know the term ‘plan view’, with many candidates copying the end view into the answer space.

Very few candidates were able to combine knowledge of standard form and percentage increase in part (c).

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UNIT 1 HIGHER TIER

Overview of the Unit

Candidates appeared to have sufficient time to complete the paper. They generally performed well throughout the paper, with the exception of a few challenging questions. It was pleasing to note that markers felt that the standard of arithmetic seemed higher on this paper compared to recent Unit 1 Higher Tier papers.

Key areas for improvement include the following:

- Defining groups for the recording of discrete data
- Calculating the area of a compound shape
- The relationship between density, mass and volume
- Working with numbers written in standard form
- Explaining the method of random sampling
- Adding and multiplying surds
- Estimating acceleration from a velocity-time graph by finding the gradient of the tangent.

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

- Exchanging currency
- Finding basic percentages of amounts
- Analysing box-and-whisker diagrams
- Using bounds in basic calculations
- Reading and drawing histograms
- Converting recurring decimals to fractions
- Estimating the area under a curve.

Comments on individual questions/sections

Question 1

This question was answered well. It was the OCW question for this paper, and work was generally well presented with workings shown, suitable units given and little misuse of the equals sign. Many candidates used correct methods throughout their work. Some arithmetical errors were seen, with some candidates incorrectly evaluating 360 × 20, and others 7000 ÷ 20. The most common incorrect answer to this division was 305, coming from carrying an incorrect remainder of 1 instead of 10 within their division calculation.

Question 2

The first part of this question, that assessed defining groups for collecting data, was not that well answered. For those that chose to use inequalities, most used incorrect notation. Several candidates had 1 or more groups that overlapped each other, and poor notation was used by many to denote their last group. If the penultimate group was 21 to 25 for example, we allowed the notation 26+ for their last group, but did not allow 25+ as it wasn't clear whether this group included 25 or not.

Question 3
Those that knew the correct method generally gained full marks, as candidates showed good ability in calculating 10% and 25% of amounts. Several candidates did not know the correct method though, failing to gain any marks.

Question 4
Most candidates knew they needed to split the cross-section into rectangles. Many candidates gave a correct method to find the cross-sectional area, although a substantial number did not. Arithmetical errors with the multiplication and division calculations were also seen at times.

Question 5
Part (b)(i) of this question assessed reverse percentages, and many fully correct answers were seen. As usual, the common error was decreasing 42 by 40%.

In part (b)(ii), lots of errors were seen in converting the mass, written in standard form, into grams, with most errors coming from writing the standard form number as an ordinary number incorrectly. Many also wanted to divide the larger number by the smaller number; they were not confident with the relationship between mass, density and volume.

Question 6
Part (d) of this question required a deep understanding and was not as well answered.

Question 7
In part (c), very few candidates worked with the numbers in standard form to do the calculations. Nearly all candidates converted them into ordinary numbers, with some doing this incorrectly, making errors in place value. This type of work was only penalised in the accuracy mark. Very few candidates arrived at the correct answer of 500%. Many calculated what 1.2×10^8 was as a percentage of 2×10^7, which only gained 1 mark out of 3. It was also disappointing to note that several candidates wrote their division the wrong way around, e.g. 2/12, but evaluated it the correct way around, i.e. (12/2 =) 6.

Question 8
This question assessed interpreting and drawing histograms. Parts (a)(ii) and (b)(i) were not well answered. It was clear that many candidates in (b)(i) did not know how to calculate frequency densities even when they had regrouped the frequencies correctly.

Question 9
In part (a)(i) of this question, several candidates used $\pi \times r^2$ in their calculations, and no credit was given for this. As usual, errors were seen in the simplification of (150/360) x π x 6. Not many fully correct answers were seen, and disappointingly some who arrived at the correct answer of $5\pi + 86$ simplified it incorrectly to 91π which was penalised a mark.

Part (b) was not well answered overall. Many candidates did give the correct hanger numbers for the sample. Errors were often seen in the explanation given. Few candidates said they would number the hangers appropriately, and errors were also seen in the numbers they said they would choose from. Only saying they will choose numbers less than 81 does not satisfy the 3rd statement in the mark scheme, as it means they would choose 00 if it appeared, which of course they wouldn't if they numbered the hangers from 01 to 80.

Part (c) was not that well answered, as usual. A number of candidates thought that the square root of 1.44 was 0.12, and sometimes an incorrect adjustment of this number was seen in their subsequent calculation, with several using 1.12 rather than 1.2 as the scale factor.

Question 10
Both parts of (a) of this question were poorly answered. Most knew that the square roots of both numbers needed to be added in part (i) but were not secure in how to do this. Very few ended up with the correct answer, although many did show the start of a correct method.

In part (a)(ii), a correct method to find the area of the paved region was harder to spot here, which added to the difficulty candidates had.

In part (b), very few fully correct answers were seen. Some candidates only used Pythagoras's theorem in 1 plane, which only gained 1 of the 4 marks. Surprisingly, a significant number of candidates thought the area formula for a trapezium needed to be used.

Question 11
Part (a)(ii) was not answered well. Few candidates communicated that the lines making up the trapeziums would be above the curve thus making their calculation an overestimate.

In part (b), many did not know what was needed here, failing to draw a tangent to the curve. For those who did draw a tangent, several did go on to gain full marks dealing with differences in y and x correctly and simplifying their answer.

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UNIT 2 FOUNDATION TIER

Overview of the Unit

Most candidates attempted all questions. Candidates were more successful with many of the earlier questions than with the later questions in the paper, as is expected.

Key areas for improvement include the following:
- Calculating the area of a rectangle and a compound area involving rectangles
- Calculating the volume of a cube or cuboid
- Calculating the surface area of a cube
- Interpreting pie charts.

The following topic areas were generally well-understood or well-answered:
- Interpreting Venn diagrams
- Working with time
- Solving problems in the context of money.

Comments on individual questions/sections

Question 1
Although this question was generally answered well, candidates sometimes forgot to subtract the cost of the show from the money made from the ticket sales.

Question 2
In part (d), many candidates did not recognise the type of angle given as a reflex angle. Angles appear to be an area of weakness in both units.

Question 3
In part (a), some candidates did not find 1.8 squared, so 43. 8(888) was a common incorrect answer. It was pleasing to see in part (b) that working with time has improved.

Question 4
Most candidates did not work with area of rectangles in part (a). Many calculated perimeter or partial perimeter of the larger and/or smaller rectangle. Very few candidates knew that square units are required for an area answer.

Part (b) was quite well answered, although some candidates worked with partial perimeter.

Question 5
Candidates struggled with the use of the scale on both axes of the travel graph but particularly with the time axis. This led to incorrect answers even though candidates knew what to do.

Question 6
Most candidates gained 1 mark for the full price total of the 3 items. Many could work out 15% but did not understand how to find the savings made including the discount card. Many candidates added on the cost of the discount card.

Question 8
In part (a), most candidates incorrectly assumed the small and large boxes were mathematically similar and gave the height as 12.5cm. Many candidates did not know how to calculate the volume. Many candidates found the total of the 3 dimensions given for the small box.

Part (b) was not well answered. Most candidates did not have knowledge of calculating surface area. Many candidates incorrectly wrote that the total surface area of the cube was 30^2, from the square of the sum of the dimensions given in the question.

Question 9
Candidates find working with pie charts demanding. Some candidates measured the angle for public transport correctly or could calculate the number of degrees for 1 person. They did not know what to do then. If they did find the number of people for public transport, they then divided this by 4 instead of by 5.

Question 10
Many candidates did not apply knowledge of area of a triangle to answer this question. A few multiplied 2.7 by 4.3 but most just added the given dimensions. Many candidates attempted to work out 3×1.6 m^2 but several misinterpreted this and calculated 3×1.6^2.

Question 11
Several candidates were able to calculate the cost of the units and add on the standing charge. Some found the VAT but did not add it on. Some candidates worked with £250 as their total costs before VAT instead of £250.20, omitting the pence. Many candidates used 50% for VAT rather than 5%. Some candidates worked with 3 lots of standing charge, wrongly assuming £54 was for one month.

MATHEMATICS – NUMERACY

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UNIT 2 INTERMEDIATE TIER

Overview of the Unit

Most candidates attempted all questions. Performance was slightly better than expected in a few questions, but not as good as expected in a many other questions. Candidates were more successful with many of the earlier questions than with the later questions in the paper, as is expected.

Key areas for improvement include the following:

- Calculating the volume of a cube or cuboids
- Calculating the surface area of a cube
- Interpreting pie charts
- Working with ratios that contain values in the thousands
- Calculating lengths of mathematically similar shapes
- Realising that premature approximation can lead to inaccuracy in a final answer in a multi-stage problem.

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

- Interpreting Venn diagrams
- Reading and simple interpreting of travel graphs
- Applying Pythagoras's theorem to calculate the length of the hypotenuse
- Calculating the cost of electricity and the standing charge to a stage exclusive of VAT.

Comments on individual questions/sections

Question 2
In part (a), a number of candidates made no progress beyond finding the total discount or the discounted costs.

Part (b) was not well answered, very few candidates realised that 1/6 off the cost meant paying 5/6 of the cost. Few candidates had knowledge or understanding of how to halve a fraction.

Question 4
In part (a), a number of candidates incorrectly assumed the small and large boxes were mathematically similar. Other candidates did not know how to calculate a volume. A number of candidates found the sum of the 3 dimensions given for the small box.

Part (b) was not well answered. Many candidates did not have knowledge of calculating surface area. Many candidates incorrectly wrote that the total surface area of the cube was 30^2, from the square of the sum of the dimensions given in the question.

Question 5
Candidates find working with pie charts demanding. Many candidates measured the angle for public transport and made no further progress. Some candidates looked at the right angle for 'car', but did not work with 1/6 of the pie chart for 'cycle' or 'walk'.

Question 6
Many candidates did not apply knowledge of area to answer this question. Instead, they applied Pythagoras's theorem to calculate the length of the hypotenuse, then used this or the perimeter as their area. Although irrelevant here, work using Pythagoras's theorem was accurate.

Question 7
In part (a), a number of candidates omitted pence instead of using the full amounts in calculations. However, the cost of the electricity and the standing charge were often accurate. The main issue was in calculating the inclusive VAT cost, as VAT was often calculated at 50% rather than 5% and sometimes subtracted rather than added to the cost.

Question 8
In part (a)(i), a number of candidates calculated the number of calories in 1 or 4 cakes but did not make progress with calculating this as a percentage of the daily intake. Many candidates did not show any strategy to calculate the number of calories.

Part (a)(ii) was not well answered. Ratio previously has been generally well understood, however the larger numbers seemed to confuse candidates, who are generally more comfortable when a larger number is divided by a smaller number. The size of the numbers in the question clearly tested understanding.

In part (b), when the candidates worked in stages there was sometimes evidence of premature approximation leading to inaccuracy in answers.

Question 9
Some candidates did not demonstrate knowledge of trigonometric ratios in part (a), nor mathematical similarity in part (b). A number of candidates prematurely approximated the initial length calculated in part (a), so were unable to give a final answer for the total height to the required accuracy.

Question 10
In general, candidates found all parts of this question demanding, in particular part (c).

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UNIT 2 HIGHER TIER

Overview of the Unit

Candidates appeared to have sufficient time to complete the paper. They generally performed well throughout the paper, for the exception of a few challenging questions.

Key areas for improvement include the following:

- When performing calculations in stages, keep accuracy through not rounding prematurely
- Do not assume the same scale factor applies between each shape when 3 similar shapes are given
- Understanding that 'opposite' bounds are needed when a subtraction is performed
- Understanding the differences between quarterly, nominal annual and AER rates.
- How to calculate the area of a segment of a circle
- Rearranging a formula that involves dealing with a cube root.

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

- Using Pythagoras's theorem
- Using right-angled trigonometry
- Using the sine and cosine rules
- The method of stratified sampling.

Comments on individual questions/sections

Question 2

Part (a)(i) was the OCW question in this paper. Most candidates gained the accuracy of writing mark, but some lost the organisation and communication mark, either through not giving enough commentary through their work, or through not giving a conclusion to their final percentage calculation.

In part (a)(ii), many candidates were put off by the fact that 1 part was a very small number and wanted to divide 4604 by 515 or 84, which meant their method was incorrect. Some candidates lost accuracy by doing the calculation in stages with the division first and rounding this answer before proceeding to multiply.

Part (b)(ii) was answered well. Once again, some candidates who did the calculation in stages, starting with 38/60, lost accuracy by rounding the answer to this calculation.

Question 3

Part (a) was answered well. A number of candidates however did not go on to give the height of the flagpole correctly to the nearest cm, with many approximating the height of the triangle to 3.1 m rather than 3.11 m.

Part (b) was answered well too, although some incorrectly used the scale factor between 2 of the flags to find the missing dimension of their 3rd flag.

Question 4
In part (a)(i), many gave the correct group but chose 'No' incorrectly, possibly meaning they did not engage correctly with the concept of the question. Others did not know how to find the modal group from the graph.
Part (a)(ii)(I) was answered well, and many did give the correct answer for part (a)(ii)(II), but a number of candidates did not know how to find the interquartile range.

In part (b), many candidates only gained 1 mark out of 3, as they only gave how many squirrels took less than 16 seconds, this being 20% of the population of 80 squirrels.

Part (c) of the question was poorly answered. Many used an incorrect conversion between km^2 and m^2 in their calculations.

Question 6
Nearly all candidates used correct values for the upper and lower bounds of the measurements given in this question. However, to find the smallest possible area of the wall, many candidates used all lower bounds in their subtraction rather than subtracting the upper bounds for the area of the door and window from the lower bound of the area of the wall. Some misinterpreted the question, but special case marks were available to those who worked in completely the opposite sense to what was required.

Question 7
In part (a), many candidates thought the rate given in the question was the rate that needed to be used in the AER formula, and so did not show an understanding of the difference between a monthly interest rate and a nominal annual rate. Some also did not change the percentage into a decimal correctly.

In part (b), many candidates showed a partly correct method. Some incorrectly used n = 3 in their AER formula, possibly thinking that the frequency of when interest would be added (every 3 months) needed to be used. Another common error was thinking they could use the nominal annual rate rather than the AER rate when using 10 percentage increases to find the amount in the account after 10 years.

Question 8
Part (a) of this question was not well answered, as many did not use a correct method to initially find either the white or black area. The vast majority understood that to find the other-coloured area, a simple subtraction from the area of the full circle was required, and many gained marks here provided they showed a partly correct method for their initial area.

Part (b) of the question assessed rearranging formula, and more success was seen here. Only two steps of rearrangement were needed, but many candidates did not deal with the cube root correctly.

Part (c) assessed the method of stratified sampling, and this question was answered quite well. Some incorrectly chose to decrease the largest number in the sample by 1 rather than the one that was above but closest to .5. Also, some performed their calculations in stages and rounded prematurely, resulting in a loss of accuracy.

Part (d) of this question was not answered well. A number of candidates showed a correct equation for the volume of the speed bump, but most failed to simplify and rearrange it correctly.

Supporting you

Useful contacts and links

Our friendly subject team is on hand to support you between 8.30am and 5.00pm, Monday to Friday.
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WJEC Qualifications

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