Examiners' Report

Principal Examiner Feedback

Summer 2025

Pearson Edexcel International GCSE

In Mathematics A (4MA1) Paper 1FR

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

Summer 2025
Publications Code 4MA1_1FR_2506_ER

IGCSE Mathematics 4MA1 1FR Principal Examiner's Report

Candidates seemed to be well prepared for this paper and were able to make an attempt at the majority of the questions. Many were able to start the final two questions on the paper and gain some credit for their working. It was pleasing to see many examples of clear, well-structured working out to support answers. In particular, on those questions that directed candidates to show their working.

Candidates seemed to be confident with standard algebraic techniques, for example on Q5 and Q23 and expressing one number as a percentage of another on Q15. They were less confident with probability, bounds and set notation, evident in Q2, Q17 and Q20.

Questions that assessed problem solving or reasoning represented more of a challenge to students. In particular Q6 which was a numerical problem and Q7 assessing geometrical reasoning.

Comments on Individual Questions

Question 1

Candidates were generally able to deal confidently with the first question on the paper with part (a) and (e) most successfully answered. In part (b) if the correct rounding was not carried out then the answer was often the given number rounded to the nearest thousand or hundred thousand showing an understanding of rounding with some confusion over place value. In part (c) an answer of thousandth, whilst not commonly seen scored 0 marks. Part (d) was also well answered and the majority of candidates knew that sum meant they needed to add the 2 values. Incorrect answers often arose from calculating a difference.

Question 2

Part (a) provided a greater challenge than expected with more incorrect answers than correct ones. Evens being a popular incorrect answer. Part (b) and (c) saw a greater proportion of correct answers. Incorrect answers in part (c) were usually with one even and one odd value rather than two even numbers.

Question 3

Part (a) required candidates to provide a measurement with correct units. This was generally well attempted. However, a number of blank responses may have indicated a lack of equipment rather than not knowing how to measure the line. A mark was available for correct units if the given measurement was within 5mm or 0.5cm of the actual length of the line. When measuring the angle in part (b) answers around 70° were very commonly seen, this showed that the candidates were able to place their protractor correctly on the diagram but had read the scale incorrectly, not considering that the angle was clearly obtuse and should be greater than 90°. It was not uncommon in part (c) to see other polygon names such as pentagon or octagon.

Question 4

This question on fractions, decimals and percentages was answered well by the majority of candidates. In parts (a) and (b) conversions were carried out well. A few answers of either 0.09 for part (a) or 0.06 or 60% for part (b) were seen but were not common. Part (e) required candidates to write a fraction from the given information and simplify the answer. If full marks were not awarded then 1 mark was often awarded for an answer of $\frac{1}{4}$ as the simplified fraction of the students who did study French of for an answer of $\frac{24}{32}$ as the unsimplified fraction of the students who did not study French.

Question 5

The first question assessing algebra was accessible to the majority of students. Common errors when simplifying in part (a) and (b) were $11ef$, $5d$ or d^6. In part (c) it was pleasing to see a good number of correct responses and very few cases where signs were unresolved with the answer given as $4a + - 5k$, this can only gain 1 mark. Solving the equations in part (d) and (e) was generally completed successfully. In part (e) if the answer was incorrect a mark could be awarded for either adding 9 to both sides of the equation or an embedded value of 11.5, it was rare to award this mark as the most common incorrect start was to subtract 9 from both sides, rather than add it on.

Question 6

Although not the intended method it was common to see more confident candidates set up and solve a pair of simultaneous equations to find the weight of one crate successfully. In weaker responses there was often an erroneous start of dividing 27.3kg by 9 and 16.8kg by 6. Additionally, there was some confusion evident over crates and boxes which meant either the final answer given was the weight of one box rather than one crate or the weight of the 3 boxes was divided by 2, the number of crates, rather than by 3. Candidates should consider carefully how they present their work on problem solving questions, such as this one, as some responses seemingly offered a choice of methods with no clear indication which method to mark.

Question 7

In part (a) candidates were asked to give a singular reason. This meant that responses that attempted to justify by using angles on a straight line twice were not awarded the mark. It was pleasing to see a good number of responses using the required vocabulary. Responses that were not awarded the mark tended to either use incorrect vocabulary associated with other angle facts, such as "corresponding angles" or stated "opposite" on its own or "opposite sides". Part (b) discriminated well and allowed most candidates to gain some credit for their knowledge. There were a number of well presented solutions with clear working and reasons given. The stated reasons generally used the required vocabulary. If full marks were not awarded it was often due to missing off the reason relating to angles in a quadrilateral. Weaker responses showed some difficulty in the application of angles on a line, attempting to add the 110° and 163° given and compare this to 180°. These responses did often gain a mark for stating that angles on a line add to 180°.

Question 8

Candidates were confident in answering this pictogram question and knew that they needed to ascertain how many toys were represented by the given symbol. Working, when shown was often presented informally and through the use of diagrams. This was perfectly acceptable for method marks if the correct answer was not obtained.

Question 9

This familiar style of question was well answered with very few errors seen in part (i). In part (ii) answers that referred to adding 7 in words, +7 shown on the sequence or the nth term given as $7n - 2$ were all creditworthy. Insufficient answers either missed out reference to the value 7 by just referring to subtracting to find the gap or adding the same number each time or they only referred to the gap or difference being 7 so missed out that this was an increase.

Question 10

There were a good number of correct responses to this question. In the responses that were not awarded full marks a mark was often given for a method to correctly calculate the total number of cars sold. This was then commonly divided by 5, the number of rows on the table, or 15, the sum of the first column, so no further marks could be awarded. Just finding the f*x* values and not adding these together falls short of gaining the first mark. Candidates would be advised to do a common sense check of their answer to ensure that it lies within the range of the data in the table.

Question 11

Those candidates who scored full marks on this question often drew out a table of values and filled this in, this seemed to be helpful in gaining all 3 marks. Attempts to draw the line without a table of values and using the intercept and gradient from the equation occasionally gained a mark for drawing a line with the correct y- intercept and a positive gradient or a line with the correct gradient.

Question 12

This exchange rate question could be approached in a few different ways. The most successful method was to work out how many Swiss francs there were in £1 and then multiply this by the cost of the jacket in £s. Responses that started by working out the number of £ in 1 Swiss franc were less likely to progress to a correct answer. Either because they then multiplied this value by the cost of the jacket in £s, rather than dividing or they prematurely rounded their value of $0.8\dot{3}$ to 0.83 losing the final mark for accuracy. This was one question where candidates would have benefited from checking the given values in the question with a little more care as there were a significant number of misread values, such responses were of course awarded the method marks where appropriate but would lose the accuracy mark.

Question 13

Those candidates who knew the correct formula for the area of a circle generally were awarded full marks for a correct answer in the required range. There were some responses that used the formula for the circumference of the circle or just multiplied the radius by π, these scored no marks.

Question 14

This problem solving question was attempted well and there were some very good responses with clear, structured working out shown gaining full or part marks. Responses that had an error in finding the perimeter of the shape commonly gained 2 marks. The error in perimeter was either because the missing lengths of 2.5 m were not included in the total perimeter or the 3 rectangles were treated separately, and the joined sides were not accounted for. Multiplying only one length by the cost per metre was not sufficient for a mark, at least 4 correct lengths were required including at least one of each given length. Similarly responses that used area gained no marks.

Question 15

A well answered standard technique question of writing two values as a percentage. In the rare case that full marks were not awarded a mark was often gained for an answer of $\frac{119}{140}$ or $\frac{17}{20}$ or 0.85.

Question 16

It was pleasing to see a range of methods used to find the LCM of 45 and 70, these included listing multiples, factor trees, dividing by consecutive primes and dividing both values by the HCF. All such methods were considered for awarding the method marks if the answer was incorrect. Those candidates who opted to list the multiples of both numbers were generally accurate and were awarded 2 marks. It was common for the candidates who used factor trees or divided both values by the HCF to give the HCF as their final answer, only scoring 1 mark for their method. Listing all the factor pairs of both numbers or having an incomplete factor tree, for instance stopping at 9, could not be credited.

Question 17

Candidates did not seem overly familiar with the concept of upper and lower bounds, correct responses were rarely seen. Common incorrect responses were to give the values of 142.7 and 142.8, one tenth below and above the given value, or 142 and 143, the integer values either side of the given value.

Question 18

There were a pleasing number of well-presented responses that met the requirements of this "show that" fractions question and were awarded full marks. The first mark was awarded for correct conversion of the two mixed numbers to improper fractions, this was frequently awarded. In some responses this was the only mark that could be given as steps in the method were missed out. For example, jumping straight to a value of $\frac{27}{7}$ without first showing the cancelling of the improper fractions before multiplying or showing the un-simplified product of $\frac{108}{28}$. Similarly jumping straight from $\frac{108}{28}$ to $3\frac{6}{7}$ without cancelling first.

Question 19

Part (a) was confidently answered. Weaker responses gave an answer of $\frac{3}{5}$ which did not take account of the spinner being biased. Part (b) was a more challenging problem solving question. Some responses started well but stopped short of the correct answer by either working out an estimate for the number of times the spinner would land on yellow rather than red, gaining 3 marks, or stopping at the probability of landing on red or the number of red and yellow in total, gaining only 2 marks. In weaker responses the probability of red and yellow was divided by 2 or by 4 and could gain no further marks. Similarly as in part (a) some attempts ignored the biased nature of the spinner and divided 350 by 5, this gained no credit.

Question 20

Set notation was a challenging topic for candidates on this paper. In part (a)(i) there was evidently confusion between the required $A \cup B$ and $A \cap B$ or members that were in *A* and *B* were listed twice. In part (a)(ii) the dash indicating not in

B was missed and the members of *B* were listed. Some candidates clearly knew what was expected but missed one element or added just one extra. In part (b) many chose the symbol for the universal set or gave the empty set as the answer to (ii) rather than (i).

Question 21

In part (a) it was common to see answers with no variable included, such as $-2 \geq 1$, which scored no marks. Those candidates who knew to use a variable and two inequality signs often gained one mark due to only one correct inequality sign. In part (b) working was required. If the correct answer was seen in the working space, then the answer on the answer line was given as just 8.25 only one mark could be awarded. A number of attempts stopped short and gave an answer of $4a \leq 33$. Errors in the initial rearranging such as $10a \leq 33$ or $10a \leq 23$ could not gain any credit.

Question 22

A confident start in part (a) of this speed, distance, time question meant full marks was common. However, there were a number of responses that showed a difficulty with either time conversion or using a calculator. These responses usually gained one mark for their method. Many of the responses where the time was converted to minutes forgot to convert the speed back and gave an answer in km/min. Part (b) provided a far greater challenge with confusion over how to convert a speed from metres per second to kilometres per hour. Answers of 180 gained 2 of the 3 marks. It was evident that in some responses the conversion from metres to kilometres was not known, as a value of 100 rather than 1000 was used. Some candidates knew they needed to use 1000 and 3600 but used these the wrong way round, such responses were usually awarded 1 mark.

Question 23

Part (a) was well answered, although some responses had an error in one term such as $x^2 - 3$ or $2x - 3x$. Rearranging the formula in part (b) presented greater difficulty. A correct first step of rearranging to $5m = t + 4$ gained a mark but was often followed by an incorrect step of dividing by 4 or switching the + 4 to the other side of the equation resulting in an incorrect answer of $5m + 4 = t$. It was not uncommon to just see t and m swap places or to give an answer of $t = m - 4 \times 5$ which shows the candidate knew which operations to inverse but did so in the wrong order. Parts (c) and (d) assessing laws of indices were successfully answered with few errors made. The demand of part (e) was challenging and there was confusion over what the command of factorising required. An answer of $y(y-10)+21$ was frequently seen. Those responses that gained a mark in (i) often did not know how to use this to solve in part (ii) often giving a different pair of brackets or an answer of −10 and 21 from the values in the equation. Some attempted to use the quadratic formula to solve, no marks can be awarded for this without a correct factorisation seen.

Question 24

As expected at this stage of the paper fully correct answers were not usual. Those who appreciated that this was a trigonometry question and identified the tangent ratio was needed gained a mark for $\tan 24 = \dfrac{6.5}{QR}$. Rearranging this correctly was difficult and incorrect next steps of $6.5 \tan 24$ or using $\tan^{-1}$ were common. Some stronger responses rounded the value of $\tan 24$ too early and ended up gaining 2 marks as their final answer was out of range. Candidates would be wise to substitute the given values into the trig ration before attempting to rearrange.

Question 25

It was encouraging to see a good number of candidates making an attempt at the penultimate question on the paper. Working out was often well organised and relatively easy to follow. There were several routes that could be taken to show that the water from the cylinder would fit into the cuboid. Correct solutions often worked out the total volume of the cuboid and the volume of the water in the cuboid added to the volume of the cylinder, this was sufficient for full marks however the additional step of finding the space left over was then carried out. Some responses gained only 2 marks as the volumes they found could not be used to draw a conclusion from. If only 1 mark was awarded this was more often for correctly working out the volume of the cylinder rather than the volume of the cuboid. Presumably those candidates used the formula sheet correctly to help them attempt the question.

Question 26

The final question on the paper allowed a good number of candidates to gain some credit for either working with the ratio of the percentage increase. Working with the ratio for Bank A was harder than working with the percentage increase for Bank B. With Bank A the investment was often divided by 23, the sum of the parts of the ratio, rather than 20. Those candidates who knew how to work out compound interest often gained 2 or 3 of the marks available for successfully working with the figures for Bank B. There were some attempts to find the difference between the two final amounts rather than the interest, this was a flawed approach due to the different original investments. In some weaker responses a mark was awarded for finding 4% of the investment.

Based on the performance on this paper, candidates should

- Practise measuring angles accurately, considering if the angle is acute or obtuse

- Make common sense checks on answers, particularly when calculating an average

- Show all steps of working on questions with fraction arithmetic

- Practise changing the subject of a formula where two steps are needed

- Ensure that in probability questions they take account of whether a spinner is biased or not biased.

- Become more familiar with questions involving upper and lower bounds

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London, WC2R 0RL, United Kingdom