OXFORD AQA
INTERNATIONAL QUALIFICATIONS

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International AS and A-level

Mathematics (9660)
MA01 – Pure Mathematics

January 2026

REPORT ON THE EXAMINATION: INTERNATIONAL – JANUARY 2026

QUESTION 1ai

This part was answered correctly by over three quarters of students. The most common incorrect answer was $(8,1)$.

QUESTION 1aii

This part was answered correctly by over three quarters of students. The most common incorrect answer was $(8,1)$.

QUESTION 1b

Over two thirds of students gave a totally correct solution.

Students gaining three marks correctly substituted $(x+3)$ for x but then usually substituted $(y-4)$ for y and did not obtain the correct value of c. Commonly students awarded two marks substituted $(x-3)$ instead of $(x+3)$ for x. This was allowed for the award of the method marks only.

A significant minority of students gained no marks. Often these students substituted $x=-3$ and $y=-4$ into $y=x^2+bx+c$ and made no progress.

QUESTION 2a

Over three quarters of students produced a totally correct and well-justified solution. A small number of students obtained a correct quadratic equation in t and then made a correct attempt at solving it only to give $t=\frac{13}{5}$ and therefore did not gain the final mark.

Students who gained two marks found a correct quadratic equation in t but had not rearranged and set equal to zero and then made no attempt to solve it before giving the correct two values of t. These students were not awarded the third method mark or the final accuracy mark. The accuracy mark was dependent upon the third method mark being awarded.

A small number of students gained the first method mark for forming a correct expression for AB^2 or AB but then either made an error expanding brackets or did not set their expression equal to 146 or $\sqrt{146}$.

QUESTION 2b

Just under two thirds of students were awarded all four marks. A significant number of the remaining students found a correct equation but then either did not give their final answer in the required form or made an error when rearranging. These students gained three marks.

Students who gained two marks usually gave incorrect coordinates for the midpoint of *AB* but then followed through to obtain a correct equation for l_2 using their midpoint. Students awarded one mark obtained the correct midpoint but then either made no further attempt or attempted to find the equation of the line through the points *A* and *B*.

QUESTION 3

Over three quarters of students applied the required index rules correctly and were awarded full marks.

The majority of the remaining students gained two marks for obtaining a final solution in the required form but with one of either a, b or c incorrect. Common errors included incorrectly expanding $\left(2xy^4\right)^3$ and obtaining $2x^3y^{12}$, or making arithmetic errors when adding the powers whilst attempting to multiply the powers of y.

A small number of students incorrectly expressed $\sqrt{y^7}$ as a power of y.

QUESTION 4a

Approximately half of students gave the required detail in their proof and were awarded both marks.

Just under a third of students gained one mark. Often these students equated the equations of the curve and the line only to quote the result given in the question without showing a further line of working. A second line of correct working was required before stating the required results. Other students made sign errors in their second line of working.

QUESTION 4b

Both correct possible values of k were found by approximately three quarters of students.

A small number of students were awarded four marks. These students made a correct attempt at solving the correct quadratic equation but either gave an incorrect value in their final answer or gave their final answer as inequalities.

Some students were awarded the first method mark for forming the correct discriminant only to make an error expanding one of the bracketed terms. Only one bracketed term in the discriminant needed to be correctly expanded for the award of the second method mark and so these students gained two marks. A number of these students then went on to make a correct attempt at solving their quadratic equation and so gained the third method mark.

QUESTION 5a

Over three quarters of students gave both correct values.

The majority of the remaining students gave one correct value. Sometimes these students gave 240 as an incorrect value for the first term. More usually students gave 6 as their value for the common difference instead of -6.

QUESTION 5b

Three quarters of students found the correct value of k. It was not necessary in this part to use the values for the common difference and first term found earlier. This enabled some students who incorrectly answered part (a) to gain both marks in this part.

A small number of students who gave incorrect values in part (a) formed a correct equation using their values for the common difference and first term in this part and were awarded the method mark.

The majority of students who gained no marks made an attempt. Common errors included equating the 13th and kth terms, setting three times the 13th term equal to the kth term, and just finding one third of the 13th term.

QUESTION 5c

Three quarters of students gave the correct solution.

Usually, those students who were awarded one mark followed through their incorrect values from part (a) to find a correct expression for the sum of the first 54 terms using their values. Others found a correct expression only to make arithmetic errors evaluating it.

A significant minority made an attempt but gained no marks. Sometimes these students misquoted the formula for the sum of the first n terms in an arithmetic sequence. Others incorrectly substituted values into the correct formula.

QUESTION 6

Just under two thirds of students gave a fully correct solution. The majority of these solutions were detailed and followed the route in the main mark scheme.

A small number of students gained between two and six marks. A common error was to use the incorrect equation $\frac{1}{2}n(n-1)a = 270$ when substituting $\frac{24}{n}$ to eliminate a. These students were not awarded the first method mark as the equation with a eliminated had to be correct. However, if students went on to rearrange their incorrect equation into a form with a single term in n then they could gain the second method mark. Sometimes these students went on to use an incorrect value of n to find a correct value of a for their n and so gain an accuracy mark. It was then possible to go on to use their values of a and n and be awarded a mark for showing a correct method to find the value of b.

Students awarded five marks obtained the correct values of a and n but then made errors calculating the value of b, often not cubing the value of a in their calculation.

Students gaining one mark had found a correct equation for the first accuracy mark but then, commonly, made no further attempt.

Just over 20% of students made limited progress. Some of these students expanded $(1+ax)^4$ and then attempted to equate coefficients using the first four terms of the expansion given in the question.

QUESTION 7a

This part required a detailed and accurate proof in order to show the given result. Two thirds of students achieved this and were awarded five marks.

Usually, students gaining four marks found a correct expression with powers and products evaluated after the limits were substituted but then did not set it equal to 2.1 before quoting the given answer and so the final accuracy mark was not awarded.

Students awarded three marks correctly integrated and then substituted in order to form an expression for the definite integral only to not completely evaluate the powers and products before giving the final answer. These students were not awarded the final two marks. Other students awarded three marks correctly integrated but then omitted the brackets when substituting the limits leading to sign errors. These students then evaluated powers and products correctly in their expression and so gained the third method mark.

A significant minority of students were awarded two marks. Commonly, students had made one error with a term in their integration but had correctly substituted the limits into it. The final method mark in this case could not be awarded as students needed to be working with the correct integration at this stage. Other students correctly integrated but then had either made no further attempt or had immediately quoted the result given in the question.

A significant minority of students gained no marks. Some of these students did not use integration but treated the region *R* as a trapezium.

QUESTION 7bi

Just over 40% of students were awarded both marks.

Approximately a half of students gained one mark. For the award of the accuracy mark powers and products after the substitution had to be evaluated before concluding that the result was zero. These students did not evaluate powers and products so only the method mark was given.

Students awarded no marks usually either used polynomial division or had substituted $x = -6$.

QUESTION 7bii

Approximately 40% of students gave a totally correct solution.

Just over a quarter of students were awarded three marks. These students had correctly expressed the cubic expression as the product of three linear factors. However, all three of the values 2, 6 and 10 were given as their final answer and the final accuracy mark was not awarded.

Students gaining two marks had found the correct quadratic factor but then had either made no further attempt or had made a sign error attempting to express as a product of linear factors.

A significant minority of students gained no marks. It was not uncommon to see 2, 6 and 10 quoted without any working at all.

QUESTION 8a

The vast majority of students were awarded both marks. Those gaining one mark had differentiated one term incorrectly, usually the term in $x^{\frac{3}{2}}$. Those awarded no marks had usually attempted integration.

QUESTION 8b

Three quarters of students correctly justified that *P* was a minimum point and were awarded three marks.

Students awarded two marks had found the correct second derivative and shown that they had substituted $x = 4$ into it. However, these students did not go on to gain the explanation mark. A common error was not finding the value of the second derivative and just stating that it was positive. Others found the value of the second derivative, stated that it was positive but concluded that *P* was a maximum point.

A small number of students gained the first mark for the correct second derivative but then gained no further credit as they did not attempt to determine its value at $x = 4$.

QUESTION 8c

Just over a half of students were awarded full marks in this part.

Just under 20% of students gained three marks. These students had obtained a correct equation for the normal at *Q* but had either made an error attempting to find the required area or not made an attempt to. Common errors included using incorrect values for the dimensions of the triangle or by attempting to find the area of triangle *OQT*.

Other occasions where marks could not be given were when students showed a correct method for finding the gradient of the tangent at *Q* only to then quote an incorrect value for the gradient of the normal. Other students found the correct value of the gradient of the normal at *Q* but then made errors substituting the coordinates *Q* when attempting to find its equation.

QUESTION 8d

Just over a half of students correctly justified that the function was an increasing function at $x = 0.2$ and were awarded three marks.

A small number of students found the correct value of $f'(0.2)$ and gained the first two marks. These students usually did not go on to indicate that its value was positive before concluding that the function was increasing and therefore did not gain the explanation mark.

A significant minority of students found a correct, unsimplified expression for $f'(0.2)$ and gained the method mark. However, these students either did not attempt to evaluate it or evaluated it incorrectly. The correct value for $f'(0.2)$ needed to be seen for the award of the final two marks.

A quarter of students made limited progress. A common error was students attempting to find the value of the function and not its derivative at $x = 0.2$.

QUESTION 9

This challenging question required a full justification with accuracy. One third of students achieved this and gained full marks. The level of algebraic skills displayed was often excellent.

The most common mark for the remaining students who gained marks was four. These students had obtained a correct equation in completed square form. However, they had then either made an error manipulating their equation or had gone straight to the final expression for x. For the fourth accuracy mark to be awarded a separate line showing the square root of both sides being taken needed to be seen. If this line was not seen, then the fourth accuracy mark could not be awarded nor the final accuracy mark as it was dependent upon all previous marks being awarded.

Usually, those students awarded three marks had shown that they were subtracting $\left(\frac{7b}{4a}\right)^2$ or $2a\left(\frac{7b}{4a}\right)^2$ but then incorrectly expanded the brackets obtaining $\frac{7b^2}{16a^2}$ for example. This led to an incorrect expression in completed square form meaning the final three marks could not be awarded.

Almost half of students gained no marks. The majority of these students made an attempt, but it was very common to see students not attempting to complete the square but rather substituting into the quadratic formula straight away. No credit was given to students who did not attempt to complete the square.

QUESTION 10a

This part required skills that had been practiced by the majority of students with three quarters awarded four marks.

A minority of students gained three marks. These students obtained the correct integral but then either did not simplify the coefficients in their final answer or did not include the constant of integration, so not gaining the final mark.

Some students awarded two marks incorrectly expressed the function in index form but then correctly integrated their expression. Others obtained a correct expression for the function in index form but made an error with one term when integrating.

Those students gaining one mark had usually correctly expressed the function in index form but then either attempted integration but then made errors integrating two or more terms, or had attempted to differentiate.

QUESTION 10b

Just over 40% of students were awarded both marks.

Just under 40% of students were awarded one mark. Commonly these students had found the correct value of c but had then given it as their final answer. Others had formed a correct equation to find c but made arithmetic errors leading to an incorrect value for c. A small number of students followed through an incorrect integration from the previous part to gain the method mark in this part. Also, a number of students obtained the correct value of c but then omitted $'y='$ from their final otherwise correct answer. The final answer needed to be an equation for the award of the accuracy mark.

Those students who gained no marks often substituted correctly but did not set their expression equal to 23 or did not include c in their expression.

QUESTION 11

This challenging and unstructured question was answered correctly by just under a third of students. Often the detail and skills shown in these solutions was excellent.

Students gaining five or six marks found the correct values of a and r but then incorrectly calculated the first term or common ratio of the series *Y*. These students could, however, use these incorrect values to gain the final method mark.

The most common mark for those awarded marks but not gaining full marks was four. These students had found the correct values of a and r but then made no further progress. Usually, students assumed these values were the first term and common ratio of the series *Y*. Others made no further attempt at a solution.

Students gaining one mark found one or both equations in a and r using the values for the sums to infinity but were then unable to form a correct single equation in a or r using them or made no further attempt at a solution.

A significant minority made an attempt but gained no marks. Often these students used the formula for the sum of the first n terms of a geometric series when equating to the values of the sums to infinity. Others attempted to use the formula for the sum of the first n terms of an arithmetic sequence.