OXFORD AQA
INTERNATIONAL QUALIFICATIONS

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International AS and A-level

Further Mathematics (9665)
FM01 – Further Pure Mathematics

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REPORT ON THE EXAMINATION: INTERNATIONAL – JANUARY 2026

QUESTION 1ai

The vast majority of students gained at least two marks. However, only two thirds of students were awarded full marks as a common error was to leave the argument as $\frac{\pi}{6}$.

QUESTION 1aii

Three quarters of students were awarded the mark in part (ii). A very common error was to swap the $+$ sign of their part (i) answer for a $-$ sign, leaving their answer in the form $r(\cos\theta - \mathrm{i}\sin\theta)$.

QUESTION 1b

Part (b) was very well answered by most students.

QUESTION 2a

The vast majority of students were awarded full marks in part (a). Some algebraic mistakes were seen in a small number of scripts. A common error was to find the correct gradient but then write the answer as $6h + 87$ instead.

QUESTION 2b

Part (b) was reasonably well answered. The usual common errors appeared, including $h = 0$, $x \to 0$ and $n \to 0$.

QUESTION 3a

Part (a) was very well answered. A small number of students made a sign error in the numerator.

QUESTION 3b

The vast majority of students gained full marks in part (b). A common error was to write the answer in terms of r instead of n. A significant minority simply wrote the answer without demonstrating the method of differences process.

QUESTION 3c

Part (c) was reasonably well answered. A common error was to substitute p instead of $p - 1$.

QUESTION 4a

Most students correctly identified the required range of values. Common incorrect answers included $k = 0$, $k \neq 0$ and $k < 0$.

QUESTION 4b

Only a quarter of students answered part (b) correctly. Most students incorrectly referred to the value of the integrand rather than the integrated expression.

QUESTION 5

The vast majority of students made good progress in question 5, with most going on to find the required square roots. A common error was to include $\sqrt{10 + \mathrm{i}\sqrt{6}}$ and/or $-\sqrt{10 - \mathrm{i}\sqrt{6}}$ in the answer.

QUESTION 6a

Part (a) was very well answered. A small number of responses included sign errors.

QUESTION 6b

Three quarters of students were awarded full marks in part (b). A common error was to replace $\Sigma 1$ with 1.

QUESTION 6c

Three fifths of students calculated the correct sum. Common errors were to substitute 100, 99, or 49 for n.

QUESTION 7a

Part (a) was reasonably well answered with three quarters of students correctly identifying the possible values of n. Most of the incorrect responses restricted the values to positive integers only.

QUESTION 7b

Almost three fifths of students made good progress in part (b), but only a third found the least positive value of b. A common incorrect answer was -3.

QUESTION 7c

Just over three fifths of students made good progress in part (c), with just under half finding the least positive value of a. Common incorrect answers included -8 and -16.

QUESTION 7d

Two thirds of students answered part (d) correctly. Most correct responses used the periodicity of the expression.

QUESTION 7e

Most students multiplied their part (d) answer by 40, and so received full marks in part (e).

QUESTION 8a

Part (a) was reasonably well answered, with the vast majority of students writing a correct equation. Most of these went on to write the equation in the required form. A common error was to write the length *RS* as $\sqrt{(x-2k)^2-y^2}$.

QUESTION 8bi

Most students correctly calculated the value of k. Some incorrectly included $-\sqrt{2}$.

QUESTION 8bii

The majority of students drew the asymptotes with the correct equations and correctly identified the x-intercepts. Only a third of students drew the curve correctly. Many drew two parabolas instead of approaching the asymptotes.

QUESTION 9a

The vast majority of students answered part (a) well.

QUESTION 9b

The vast majority of students correctly calculated the y-coordinates, but a common error was to write them the wrong way round.

QUESTION 9ci

Part (c)(i) was reasonably well answered, although the value 3 was a common incorrect answer.

QUESTION 9cii

Three quarters of students wrote down the correct y-coordinate. A common incorrect answer was ± 1.

QUESTION 9ciii

Most students were awarded at least one mark, usually for two x-intercepts at the correct positions. Only a sixth of students drew a completely correct graph, with many students failing to line up the stationary points.

QUESTION 10a

The vast majority of students correctly calculated at least one of the required values, with most giving a fully correct response. Most correct responses used the sum and product of the roots. A common incorrect answer was $m = 8$ and $n = 41$.

QUESTION 10b

Part (b) was very well answered.

QUESTION 10ci

Two thirds of students drew a fully correct diagram. A common error was to draw conjugate roots clearly unequally distanced from the real axis.

QUESTION 10cii

Part (c)(ii) was reasonably well answered.

QUESTION 10di

Half of the students correctly calculated the required value, although some gave the answer as 8 after calculating it as -8. Most formed an equation by equating the distances from the centre to two of the points, whilst a significant minority solved simultaneous equations of the perpendicular bisectors of two chords. A common error was to assume the centre of the circle was at the intersection of the trapezium diagonals.

QUESTION 10dii

Half of the students correctly calculated the value of β.