Mathematics (Advanced Higher): question paper 2

Commentary on candidate evidence

Workshop 2

Commentary on candidate evidence

The evidence for the following candidates has achieved the marks given below:

Question 5(a)

Candidate 1

The candidate was awarded **3 marks.**

As shown in Commonly Observed Response C, the candidate's incorrect use of an equals sign was disregarded, and mark 1 was awarded. Mark 2 was awarded for the correct simplification of x terms. The candidate had subsequently corrected the omission of brackets round –2, so mark 3 was awarded.

Candidate 2

The candidate was awarded **2 marks.**

Evidence for marks 1 and 2 was present. The candidate did not simplify the x terms, so mark 3 was not awarded.

Candidate 3

The candidate was awarded **3 marks.**

Evidence for the award of marks 1 and 2 was present. The candidate had subsequently corrected the omission of brackets round $3x$, so this was treated as bad form and mark 3 was awarded.

Candidate 4

The candidate was awarded **2 marks.**

Evidence for the award of marks 1 and 2 was present. The candidate did not correct the omission of brackets round –2, so mark 3 was not awarded.

Question 7(a)

Candidate 5

The candidate was awarded **4 marks.**

The candidate had correctly determined the integrating factor and implemented a formula approach therefore marks 1, 2 and 3 were awarded. The candidate handled the constant of integration appropriately, producing the correct particular solution, so mark 4 was awarded.

Candidate 6

The candidate was awarded **3 marks.**

The candidate had correctly determined the integrating factor and implemented a formula approach therefore marks 1, 2 and 3 were awarded. The candidate did not handle the constant of integration correctly, so mark 4 was not awarded.

Candidate 7

The candidate was awarded **0 marks.**

The candidate did not find an integrating factor and integrated the three terms in the equation with respect to x, y and x respectively therefore marks 1, 2, 3 and 4 were unavailable.

Question 10

Candidate 8

The candidate was awarded **5 marks.**

The candidate took logs of both sides, applied the relevant rule, differentiated $\ln y$, applied the product rule and rearranged correctly, so marks 1, 2, 3, 4 and 5 were awarded. It was not necessary to take out a common factor of 5.

Candidate 9

The candidate was awarded **3 marks.**

The candidate took logs of the right-hand side only, then proceeded as if they had taken logs of the left-hand side also. This meant that the second line was incorrect, and the third line did not follow from it, so marks 1 and 2 were not awarded. Since the error did not involve copying an expression, it could not be

treated as a transcription error. The rest of the solution was carried out correctly, and marks 3, 4 and 5 were awarded.

Candidate 10

The candidate was awarded **4 marks.**

The candidate took logs of both sides, applied the relevant rule, differentiated $\ln y$, applied the product rule and rearranged correctly, so marks 1, 2, 3 and 4 were awarded. The candidate went on to produce an incorrect rearrangement of the derivative. In accordance with the detailed marking instructions, mark 5 was not awarded.

Question 11(b)

Candidate 11

The candidate was awarded **3 marks.**

Evidence was present for the award of marks 2, 3 and 5. The candidate incorrectly interpreted the rate of change of volume with respect to time and did not give a unit in their final answer, so marks 4 and 6 were not awarded.

Candidate 12

The candidate was awarded **4 marks.**

Evidence was present for the award of marks 2, 3 and 5. The candidate incorrectly interpreted the rate of change of volume with respect to time, so mark 4 was not awarded. They did give a correct unit in their final answer, so mark 6 was awarded.

Question 12

Candidate 13

The candidate was awarded **5 marks.**

The candidate demonstrated that the result was true for n = 1, correctly stated and applied the inductive hypothesis, and carried out the required algebra, so marks 1, 2, 3 and 4 were awarded. In the final statement, the requirement to communicate implication was met by the appropriate use of ‘when’ and mark 5 was awarded.

Candidate 14

The candidate was awarded **3 marks.**

The candidate demonstrated that the result was true for n = 1, and correctly stated and applied the inductive hypothesis, so marks 1, 2 and 3 were awarded in accordance with note 3 of the marking instructions. The following algebra was incorrect, so marks 4 and 5 were not awarded.

Candidate 15

The candidate was awarded **4 marks.**

The candidate substituted and demonstrated that the result was true for n = 1, correctly stated and applied the inductive hypothesis, and carried out the required algebra, so marks 1, 2, 3 and 4 were awarded. In the final communication, the candidate referred to the truth of the value of n rather than the truth of the statement, so mark 5 was not awarded.

Question 13

Candidate 16

The candidate was awarded **6 marks.**

The candidate's solution corresponded with a Commonly Observed Response, except that the constant of integration had been on the other side. The candidate had handled this correctly and had arrived at a final answer which was equivalent to the required response. All six marks were awarded.