EXAMINERS' REPORTS

LEVEL 2 CERTIFICATE IN ADDITIONAL MATHEMATICS

SUMMER 2012

Statistical Information

The Examiner's Report may refer in general terms to statistical outcomes. Statistical information on candidates' performances in all examination components (whether internally or externally assessed) is provided when results are issued.

Annual Statistical Report

The annual Statistical Report (issued in the second half of the Autumn Term) gives overall outcomes of all examinations administered by WJEC.

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Chief Examiner: Linda Mason

There was no evidence to suggest that the examination paper was too long for candidates, as there were clearly responses in later questions.

A number of candidates were obviously well prepared for the examination. Other candidates did not seem to have been ready, or mature enough for this examination.

As item level data is available to all centres, by centre and for individual candidates with comparison of all candidates sitting these examinations, this report will focus on common errors and misconceptions to aid the interpretation of the data available rather than focus whether each question was well answered or not.

Q.1 In part (a) a number of candidates did not show working. This is required in order to show clearly that they understand the nature of the indices and that they are able to calculate accurately. Part (b)(ii) was not well answered. Candidates did not always demonstrate that they understood either a method of extracting a common factor or a method of splitting the denominator to simplify the expression.

Q.2 Although many candidates indicated that they knew a common denominator of $x + 2y$ was required, many candidates did not know how to apply the idea. A number of candidates confuse equations with expressions.

Q.3 Many candidates demonstrated accurately their skills and knowledge of differentiation.

Q.4 A number of candidates were unsure what they were showing by substituting $x = -3$ into f(x), but went on to successfully factorise correctly.

Q.5 Although some candidates engaged with the strategy, many others did not. An incorrect method, seen often, was to substitute the value given immediately, which is incorrect logic.

Q.6 A common error was to multiply by $2+\sqrt{5}$, or $(2+\sqrt{5})/(2+\sqrt{5})$ in part (a). In part (b) the subtraction of the second bracket often led to errors in signs. However, many candidates gave completely correct responses in both parts.

Q.7 Many candidates applied knowledge of finding lengths and gradients well. Errors were often arithmetic.

Q.8 Part (b) proved to be more demanding than the other two parts, with the middle quotient term in particular. However, many candidates had good knowledge of differentiation and integration.

Q.9 Incorrect signs often were the main errors seen in part (a). In part (b) some candidates did not state the least value, after completing the square accurately some candidates did not then answer the question.

Q.10 A number of candidates did not appear to know a method for solving simultaneous equations, involving a quadratic term. But many other candidates answered this question efficiently.

Q.11 Visualising the problem and forming equations was the most demanding step for candidates. However, the majority of candidates did attempt to sketch and model the problem. The repeated use of techniques was then often accurate.

Q.12 Many candidates realised that integration was required. Accurate integration with correct use of limits was often seen, however some candidates write that they intend to integrate, but then don't do so, instead simply substituting the limits and subtracting using the equation given in the question.

Q.13 Many candidates were able to visualise the three-dimensional nature of the problem. Errors were often seen in the formation of Pythagoras' Theorem statements.

Q.14 Many candidates were not able to understand that this question required a simple area of a rectangle. Finding a statement for the circumference was a crucial first stage, however a number of candidates attempted to use the area formula for a circle to find the circumference!

Q.15 Notation is very important. It is essential that candidates show an understanding of limits and use appropriate notation. Candidates with this understanding often found this question straight forward. Other candidates had confusion with what they were actually calculating.

Q.16 Many candidates selected the correct equation. However, candidates' understanding relating transformation to trigonometric equations is not good. The final part of the question was often answered using trial and improvement methods, with embedded answers rather than through the solution of the equation. Candidates often do not connect these two aspects of mathematical thinking.

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