EXAMINERS' REPORTS

LEVEL 2 CERTIFICATE IN ADDITIONAL MATHEMATICS

SUMMER 2016

Grade boundary information for this subject is available on the WJEC public website at: https://www.wjecservices.co.uk/MarkToUMS/default.aspx?l=en

Online Results Analysis

WJEC provides information to examination centres via the WJEC secure website. This is restricted to centre staff only. Access is granted to centre staff by the Examinations Officer at the centre.

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.

ADDITIONAL MATHEMATICS

LEVEL 2 CERTIFICATE

Summer 2016

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.

1	In part (a), a few candidates struggled with factorising, not working with the numbers and the signs in the brackets correctly, although the 7x and 3x were often correct. In part (b), a few candidates did not seem to have knowledge of completing the square, whilst other candidates answered this question correctly. A common error was to write $(x + 6x)^2$ rather than $(x + 6)^2$. It is clear that candidates do not always appreciate the difference between the least value and for what value of x this occurs.
2	Part (a) was generally answered well, with errors more apparent in parts (b) and (c). A common error in part (b) was to give an index of -7 rather than -9.
3	Although many candidates worked with a common denominator, there was evidence of not working with the '-(x – 6)' correctly, in particular the '-6'. Some bad practice was also seen, by not showing the common denominator of 70, or showing it but 'cancelling' it with the right hand side. The best practice is to write the left hand side with a common denominator and show that this side is equivalent to the right hand side, finishing with this closing statement algebraically.
4	Although many candidates had some recall of what to do, very few did so completely accurately. Notation is quite an issue, as correct notation with understanding is required. It is important to look carefully at methods to teach this, as it was often found that the entire candidate entry from particular centres all used the same notation, which was often not accurate. Please see mark scheme notes as to the expectation here. Also the '$-(x^2 + 3x)$' was often written '$-x^2 + 3x$', but used as if brackets were present. The brackets are important, as strictly +3x with a further +3x does not cancel to zero, this did cause some confusion for candidates.

5	Many candidates answered this question correctly, by one of two strategies. They either found the area of the entire thin piece of card and subtracted area accordingly; or worked only with the 'white' ends of the diagram. There were also a number of candidates who incorrectly thought the width of the card was 24cm, coming from 3 × 8 or 3 diameters, just by eye? A few candidates worked with the volume of the cylinder and hence made no progress. Units, labels and workings were usually given and QWC2 was quite often awarded.
6	In part (a) a common error was to use $(5 + \sqrt{2})/(5 + \sqrt{2})$ as a multiplier, although many candidates did select the correct multiplier. Part (b)(ii) was not well answered, although many candidates did answer (i) correctly. The issue seemed to be when the fraction was split into two fractions and then working with the $x^{2/9}/x^{2/9}$, or incorrectly cancelling from the given fraction.
7	Many candidates answered this question well, with just a few errors, usually in finding the gradient or the perpendicular gradient. It did seem that many candidates had the required knowledge to form an equation.
8	It seems that many candidates do have the skills to identify stationary points. However, having written $3x^2 – 6x = 0$ correctly, many candidates had difficulty solving this quadratic, with the $x = 0$ solution often lost by incorrectly deciding to cancel 'x' after writing $3x^2 = 6x$, other candidates incorrectly wrote $x = \pm 2$. So the main issue was deciding where the stationary points where, rather than their nature.
9	Many candidates used calculators and consequently were not awarded marks.
10	This question was generally well answered. A few candidates used division in (b)(ii), correctly finding the quadratic required, but did not proceed to factorise.
11	The question required a sketch. Many candidates 'plotted points' found from their calculators, but did not think about the nature of the shape of the curve required, which was not clear from their (usually 5) 'plotted points'. Part (b) was sometimes correct, despite an incorrect sketch in part (a), as these values can be found from use of a calculator.
12	Part (a) was generally well answered. In part (b), a few candidates omitted the constant of integration. It seems that either a candidate has knowledge of integration or they do not. A few candidates, in part (c), substituted the limits but then incorrectly decided to add rather than subtract.
13	Many candidates found y = 33, and many found the gradient, but quite a few of these candidates did not proceed to show a method for finding the equation.
14	Many candidates seemed unsure how to solve the equations, occasionally using substitution which led to an equation still in terms of x and y! Other candidates answered the question correctly.
15	Part (a) was often answered correctly, and those candidates with integration skills also went on to make a good attempt with part (b).

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