



# **EXAMINER'S REPORT**

## **LEVEL 2 CERTIFICATE IN ADDITIONAL MATHEMATICS**

**SUMMER 2013**

## **Grade Boundaries**

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. This will be available at:  
<http://www.wjec.co.uk/index.php?nav=51>

# ADDITIONAL MATHEMATICS

## Level 2 Certificate

Summer 2013

Chief Examiner: Linda Mason

### General Comments

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

Many candidates were obviously well prepared for the examination. It was very encouraging to see the excellent work of many candidates. 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 Many candidates clearly know the rules for differentiation. However, due to some lack of understanding there were a number of errors.
- Q.2 A number of candidates have poor skills with factorising, however they were often able to continue to solve for their incorrect pair of factors.
- A number of candidates completed the square correctly, but did not state the least value.
- Q.3 Although some candidates were able to write equations directly from the information given, other candidates struggled with this aspect. The skills of translating from the written information into mathematical form are underdeveloped.
- Q.4 Part (a) was very well answered, with candidates expressing their response in surd form.
- Most candidates considered the need to demonstrate skills of QWC with processes labelled and workings shown. A number of candidates correctly found the perpendicular gradient, but did not find the mid-point.
- Q.5 A number of candidates made errors with signs, having correctly expanded the brackets.
- Q.6 Some candidates did not have a strategy, deciding incorrectly to differentiate. However, many other candidates did find the point of intersection correctly.

Q.7 In part (b) the middle term caused candidates some difficulties, although they clear knew what they should be doing, having answered other parts correctly.

The definite integration part of the question was well answered.

Q.8 Many candidates correctly found the remainder in part (a) and showed that the remainder was zero in part (b)(i).

Having divided or used another method many candidates found the trinomial in part (b)(ii), however some candidates made errors in factorising.

Here again there is evidence that candidates are not secure with factorising.  
Q.9 Many candidates visualised the problem correctly, although a few thought incorrectly that AC was 17.3cm.

There were many ways to find the required angle. Some candidates included unnecessary calculations. Many candidates answered the question in two simple stages. Other candidates had less efficient strategies.

Q.10 Many candidates did not pay care and attention to the detail of notation. If understanding is clear then a candidate is going to write their methods correctly. Many candidates demonstrate that they have met techniques, but as yet do not fully understand them.

Q.11 Many candidates realised that there was a need to integrate. Errors of integration were more often with the ' $-x^2$ ' term rather than with ' $10x$ '.

Q.12 A number of candidates were unsure of a method to apply in this question, but many candidates did differentiate correctly, with an equate to zero. A number of candidates did not show their method of determining whether the points found were maximum or minimum points.

Q.13 A number of candidates calculated  $y = 20$  when  $x = 2$ , and differentiated then substituted  $x=2$  to find the gradient. It was finding the equation of the tangent using this information that caused candidates greater difficulties.

Q14 In part (a) it was important to show working, the stages of the calculation. A calculator found value is insufficient to demonstrate understanding of roots and indices.

Part (b) was not well answered. Fractional powers seem to cause confusion when simply algebraic rules are applied.

Q.15 Although a number of candidates sketched an appropriate graph, a number of candidates incorrectly changed the period. In part (b), a number of candidates omitted the solution  $0^\circ$ .

The final version of this Principal Examiner's Report will be available by 20 September 2013



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