

Mark Scheme (Results)

January 2014

Pearson Edexcel Level 2 Award  
In Algebra (AAL20)

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## NOTES ON MARKING PRINCIPLES

### 1 Types of mark

M marks: method marks

A marks: accuracy marks

B marks: unconditional accuracy marks (independent of M marks)

### 2 Abbreviations

cao – correct answer only

isw – ignore subsequent working

oe – or equivalent (and appropriate)

indep - independent

ft – follow through

SC: special case

dep – dependent

### 3 No working

If no working is shown then correct answers normally score full marks

If no working is shown then incorrect (even though nearly correct) answers score no marks.

### 4 With working

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.

If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.

If it is clear from the working that the “correct” answer has been obtained from incorrect working, award 0 marks.

If there is no answer on the answer line then check the working for an obvious answer.

Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks. Discuss each of these situations with your Team Leader.

If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

**5 Follow through marks**

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.

Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

**6 Ignoring subsequent work**

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: e.g. incorrect cancelling of a fraction that would otherwise be correct

It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect e.g. algebra.

Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.

**7 Parts of questions**

Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

**8 Use of ranges for answers**

If an answer is within a range this is inclusive, unless otherwise stated.

**PAPER: AAL20\_01**

<b>Question</b>	<b>Working</b>	<b>Answer</b>	<b>Mark</b>	<b>Notes</b>
1		$6c + 24t$	2	M1 for $6c$ or $24t$ A1 for $6c + 24t$ oe
2 (a)		$6x + 5y + 7$	2	M1 for collecting terms in $x$ or terms in $y$ or constant terms A1 for $6x + 5y + 7$
(b)		$8x - 12$	2	M1 for $8x$ or $(- )12$ A1 for $8x - 12$
(c)		$2p + 10p^2$ or $10p^2 + 2p$	2	M1 for $2p$ or $10p^2$ A1 cao
(d)		$x^8$	1	B1 cao
(e)		$a^5$	1	B1 cao
3 (a)	$4 \times 3^2$	36	2	M1 for substituting 4 and 3 correctly into the expression $cv^2$ A1 cao
(b)	$25 = c \times 10^2$ $25 = 100c$	0.25	3	M1 for substituting 25 and 10 correctly into the formula $w = cv^2$ M1 $c = 25 \div '100'$ A1 oe

**PAPER: AAL20\_01**

Question	Working	Answer	Mark	Notes
4		$u = \sqrt{\frac{t+14}{5}}$	3	M1 for adding 14 to both sides or dividing all terms by 5 or sight of $\frac{t+14}{5}$ M1 $u^2 = \frac{t+14}{5}$ oe A1 $u = \sqrt{\frac{t+14}{5}}$ oe ( allow $u = \pm \sqrt{\frac{t+14}{5}}$ )
5		Sketch of graph	3	B1 for general shape in all 4 quadrants B1 for symmetry in the y axis (must be parabola) B1 for labelling of y intercept at (0, -9)
6 (a)(i)		2, -1	2	B1 for 2 B1 for -1
(ii)	$-28 = 5 - 3n$	11th	3	M1 for $-28 = 5 - 3n$ M1 for rearranging to isolate the term in $n$ A1 for 11(th) or M1 for an arithmetic sequence with common difference -3 and containing -28 M1 for correct sequence with last term -28 A1 for 11(th)
(b)(i)		27	1	B1 cao
(ii)		$4n + 7$	2	B2 for $4n + 7$ (B1 $4n + c, c \neq 7$ or $an + 7, a \neq 0, 4$ )

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Question	Working	Answer	Mark	Notes
7 (a)		3	2	M1 for collecting terms in $x$ and constant terms A1 cao
7 (b)	$6y + 9 = 21$ $6y = 21 - 9$ $y = 12 \div 6$  $2y + 3 = 7$ $2y = 7 - 3$ $y = 4 \div 2$	2	3	M1 for correct method to multiply out the bracket or to divide each side by 3 M1 for subtracting 9 from each side of the equation or subtracting 3 from each side of the equation or dividing all 3 terms by 2 A1 cao
7 (c)	$2y + 3 = 7$ $y + 1.5 = 3.5$ $y = 3.5 - 1.5$	-55	2	M1 for correct method to subtract 7 from each side or multiply all 3 terms by 5 as a start to solving the equation A1 cao
8 (a)		-5, -1, 1, 3	2	B2 all 4 correct (B1 any 2 or 3 correct)
8 (b)		Line drawn	2	M1 ft 5 or 6 points correct A1 cao with line drawn

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Question	Working	Answer	Mark	Notes
9 (a)		$-2 \leq x < 2$	2	M1 $-2 \leq x$ or $x < 2$ A1 cao NB Accept the use of any letter other than $x$
(b)		Closed circle at $-4$ joined to an open circle at $1$	2	M1 for a line from $-4$ to $1$ A1 for a correct diagram
(c)		$-2, -1, 0$	2	B2 cao (B1 for 2 correct (and no incorrect values), or one additional value, eg $-3, -2, -1, 0$ )
(d)		$p > \frac{16}{5}$	3	M1 for adding 4 to both sides or dividing all three terms by 5 M1 for dividing both sides by 5 or adding “ $\frac{4}{5}$ ” to both sides. A1 $p > \frac{16}{5}$ oe  (SC B2 for $\frac{16}{5}$ oe on the answer line)



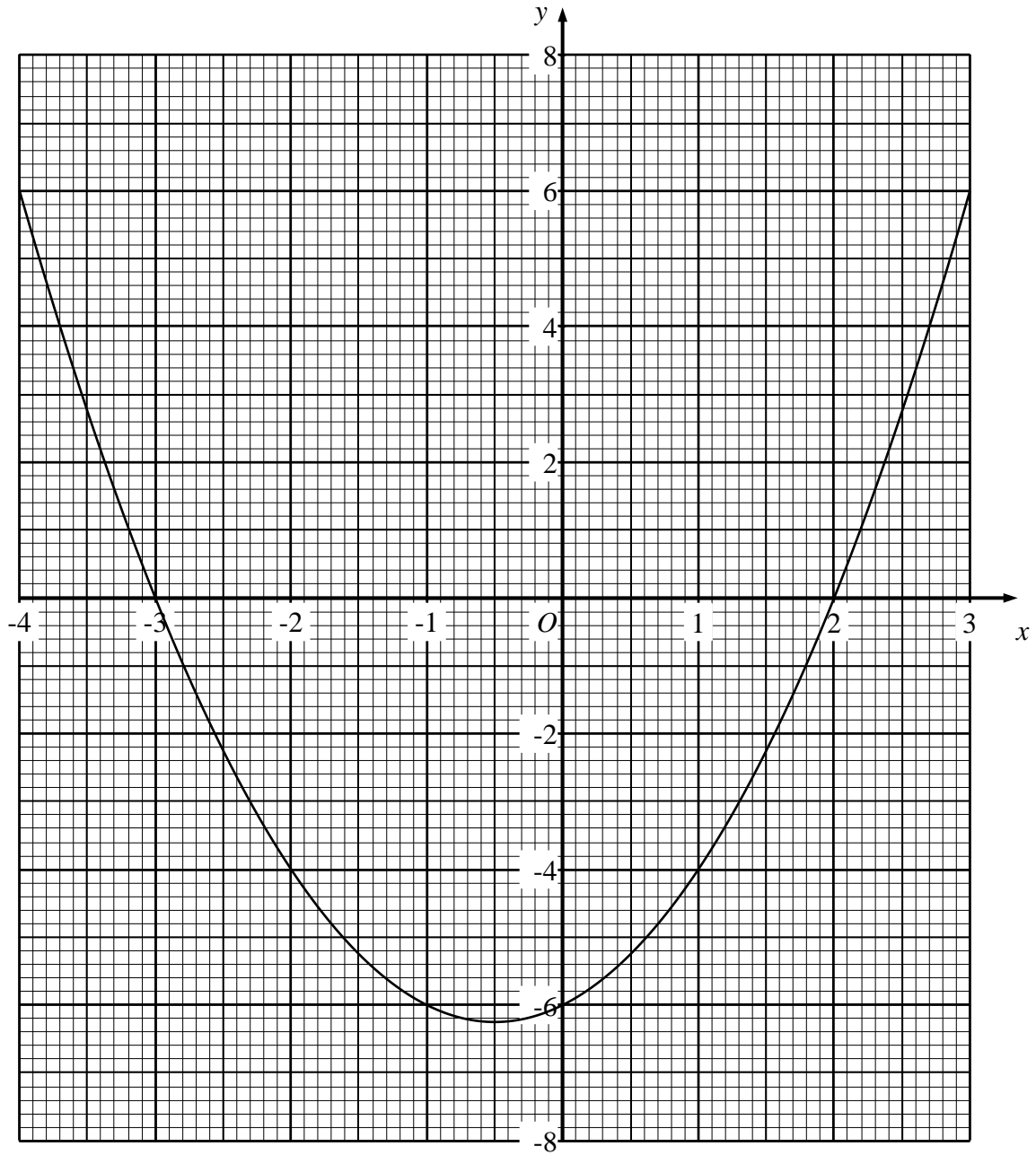
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<b>Question</b>	<b>Working</b>	<b>Answer</b>	<b>Mark</b>	<b>Notes</b>
10 (a)		$2x(2 + 9y)$	2	B2 for $2x(2 + 9y)$ (B1 for correct partial factorisation)
(b)		$ab(b-a)$	2	B2 cao (B1 for $a(b^2 - ab)$ or $b(ab - a^2)$ )
(c)		$18p^2(2 + p^2)$	2	B2 cao (B1 for correct partial factorisation with 18 or $p^2$ as one factor)
11 (a)		1.5	2	M1 for complete method to find gradient , eg sight of right-angled triangle with their height divided by their base or for $(y = )1.5x (+3)$ seen A1 for 1.5 oe
(b)		$y = -x + 4$	3	M1 for gradient = -1 oe M1 for intercept 4 used A1 for $y = -x + 4$ oe
12 (a)		4	2	M1 for a complete method to find the gradient A1 cao
(b)		15	1	B1 cao
(c)		11 15	1	B1cao
(d)		Correct graph	2	B1 line from 11 30 to 12 00 on $x$ axis B1ft straight line from point on $x$ axis joined to (12 15, 8)

**PAPER: AAL20\_01**

<b>Question</b>	<b>Working</b>	<b>Answer</b>	<b>Mark</b>	<b>Notes</b>
13 (a)		0, -6, -4, 6	2	B2 all 4 correct (B1 any 2 or 3 correct)
(b)		Graph drawn	2	M1 ft 7 or 8 points correctly plotted A1 cao with smooth curve drawn
(c)		-3, 2	2	B1 -3 B1 2
(d)		2.5 - 2.9 and -3.5 - -3.9	2	M1 for any correct method using the graph, eg $x^2 + x - 6 = 4$ or $y = 4$ drawn A1 cao
14 (a)		80	1	B1 cao
(b)		20	2	M1 for complete method to find gradient A1 cao
(c)		Line drawn	3	M1 for marking (0,60) on the graph M1 for drawing a line of gradient 15 A1 cao

Question 13



Question 14

