

Mark Scheme (Results)

January 2015

Pearson Edexcel Level 2 Award
in Algebra (AAL20)

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

January 2015

Publications Code EA040355

All the material in this publication is copyright

© Pearson Education Ltd 2015

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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. Send the response to review, and discuss each of these situations with your Team Leader.

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					
Question		Working	Answer	Mark	Notes
1			Expression Equation Formula	2	B2 for matching all correctly (B1 for matching 1 or 2 correctly)
2	(a)		$5x + 3y + 13$	2	M1 for collecting like terms in x or y or constants A1 for $5x + 3y + 13$ (accept answer in any order)
	(b)		$15x - 20$	2	M1 $15x$ or $(-)20$ seen A1 for $15x - 20$ (accept answer in any order)
	(c)		a^{10}	1	B1 cao
	(d)		b^8	1	B1 cao
3	(a)		$4a + 6c$	2	M1 for $4a$ or $6c$ oe A1 for $4a + 6c$ oe
	(b)		$T = 8a$	2	M1 for “ $T =$ ” expression in a or for $8a$ A1 $T = 8a$ (SC B1 for $\frac{T}{8} = a$)
4	(a)		22	2	M1 for $3 \times 6 + 4$ (may be seen in stages) A1 cao
	(b)		5	3	M1 for $54 = r \times 10 + 4$ M1 $r = 50 \div 10$ A1 cao
	(c)		$\frac{k-4}{r}$	2	M1 for $k - 4 = rt$ oe or $\frac{k}{r} = t + \frac{4}{r}$ oe A1 $\frac{k-4}{r}$ oe

PAPER: AAL20_01					
Question		Working	Answer	Mark	Notes
5	(a)		-2	2	M1 for isolating x terms and constants A1 cao
	(b)		9.5	3	M1 for correct first step in solution, eg expanding the bracket or dividing throughout by 3 M1(dep M1) for correct second step, eg isolating terms in y or constant terms A1 9.5 or $\frac{19}{2}$
	(c)		12	2	M1 for subtracting 5 from each side or multiplying by 4 throughout A1 cao
6			Sketch drawn	3	B1 General shape (inverted parabola) in all 4 quadrants B1 Symmetry about the y -axis B1 Intersection of y -axis at (0, 10)
7	(a)		65	1	B1 for 64 - 66
	(b)		15	2	M1 for complete method to find gradient A1 cao
	(c)		2 hours	2	M1 for evidence of reading off at 60 on the y axis or $\frac{60-20}{15}$ oe or 2hr 40 mins A1 cao
8	(a)		-4, (-1), (2), 5, 8, 11	2	B2 for all 4 entries correct (B1 for 2 or 3 entries correct)
	(b)		Line drawn	2	M1 for at least 5 of their points plotted correctly or line not extending over full range A1 cao

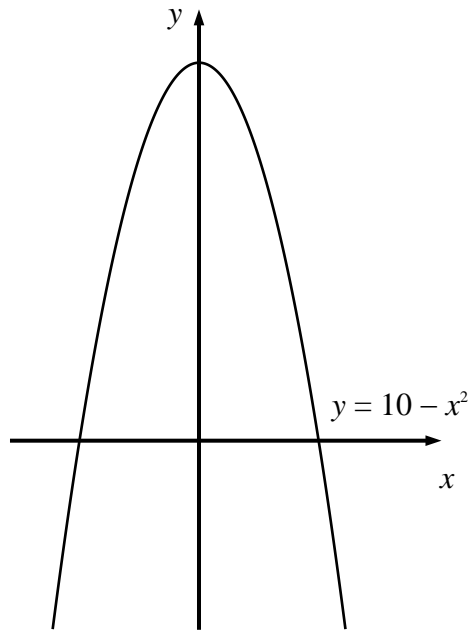
PAPER: AAL20_01

Question		Working	Answer	Mark	Notes
9	(a)		Integer 4 or greater	1	B1 for one integer, 4 or greater
	(b)		$-2 \leq x \leq 4$	2	M1 for $-2 \leq (x)$ or $(x) \leq 4$ or $-2 < x < 4$ A1 cao
	(c)		Line up to 3 with open circle at 3	2	M1 for line from left side ending at 3 A1 cao
	(d)		$t > -\frac{14}{3}$	3	M1 for a first step ie -4 or $+3$ to both sides or multiply all terms by 2 M1 (dep M1) for a second correct step e.g. multiply throughout by 2 A1 $t > -\frac{14}{3}$ oe
10	(a)		$x = 3$	1	B1 for $x = 3$
	(b)		-3	2	M1 for complete method to find gradient A1 cao
11	(a)		8, 13	2	B1 for 8 B1 for 13 or ft
	(b)	(i)	11, 15	4	B1 for 11 B1 for 15
		(ii)	12th		M1 for $4n + 3 = 51$ or $4 \times 12 + 3$ or $(51 - 3) \div 4$ A1 for 12 ^(th)
	(c)	(i)	13	3	B1 cao
		(ii)	$2n + 3$		B2 for $2n + 3$ (B1 for $2n + b$ or $an + 3$, $a, b \neq 0$)

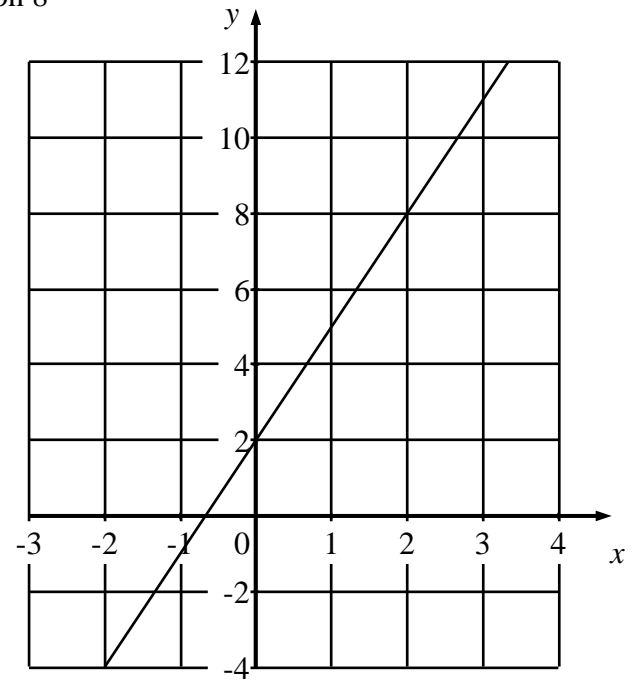
PAPER: AAL20_01					
Question		Working	Answer	Mark	Notes
12	(a)		$5x(3 - y)$	2	B2 for $5x(3 - y)$ or $(3 - y)5x$ (B1 for a correct partial factorisation)
	(b)		$7r^2(2 - 3r)$	2	B2 for $7r^2(2 - 3r)$ (B1 for a correct partial factorisation taking out “ r ” or “ r^2 ”)
	(c)		$2ty(y + 5)$	2	B2 for $2ty(y + 5)$ (B1 for a correct partial factorisation taking out at “ $2t$ ” or “ $2y$ ” or “ ty ”)
13	(a)	5, (0), -3, -4, -3, 0, (5)	5, -3, -4, -3, 0	2	B2 for all 5 entries correct (B1 for 2 or 3 or 4 correct)
	(b)		Graph drawn	2	M1 for at least 5 correct points plotted. A1 for correct curve drawn
	(c)		1.5 - 1.6 and 4.4 - 4.5	2	M1 for any correct method using the graph, eg $y = -2$ drawn (may be implied by one correct answer) A1 for value in the range 1.5 - 1.6 and value in the range 4.4 - 4.5
14	(a)		16	1	B1 cao
	(b)		47	2	M1 for $5 \times 3^2 + 2$ or $5 \times 9 + 2$ A1 cao

PAPER: AAL20_01					
Question		Working	Answer	Mark	Notes
15	(a)		36	2	M1 for complete method to find gradient or 3×12 A1 cao
	(b)		15	2	M1 for 5 and 10 (can be indicated on the graph) A1 cao
	(c)		Graph completed	3	B1 for line from (40, 24) to (45, 24) M1 for a line of the correct gradient drawn A1 for line finishing at (75, 0)

Question 6



Question 8



Question 13

