Pearson Edexcel

Mark Scheme (Results)

January 2022

Pearson Edexcel Edexcel Award
In Algebra (AAL20)
Paper 01

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

Mark scheme Edexcel Award in Algebra

PAPER: AAL20_01					
Question	**Working**	**Answer**	**Mark**	**Notes**	
1 (a)		$2e + 5f$	1	B1 oe	
(b)		$30cd^3$	2	B2 for $30cd^3$ (B1 for 2 correct elements out of a product of 3 elements, accept use of ×)	
(c)		x^6	1	B1 cao	
(d)		$12a^3$	2	M1 for $4a^2$ or 3×4 (= 12) or $a \times a^2$ (= a^3) A1 $12a^3$	
(e)		$4w^2$	2	B2 for $4w^2$ (B1 for 4 or w^2)	
2		Expression Formula Equation Expression	3	B3 All correct (B2 for 2 or 3 correct B1 for 1 correct)	
3		$\frac{5n}{8}$	1	B1 oe e.g. $5 \times n \div 8$ or $\frac{5}{8} \times n$	

PAPER: AAL20_01					
Question	**Working**	**Answer**	**Mark**	**Notes**	
4 (a)(i)		4	2	M1 for $14 \div 7$ (= 2) or 2×14 (= 28) A1 cao	
(ii)		35	2	M1 for setting the equation equal to 10 and a correct first step eg dividing both sides by 2 or multiplying both sides by 7 A1 cao	
(b)		$h = \frac{(g-7)}{4} - f$	3	M1 for a correct first step eg $g - 7 = 4(h + f)$ or $4h + 4f$ M1(dep) for a second correct step eg $\frac{(g-7)}{4} = h + f$ or $g - 7 = 4h + 4f$ or for $\frac{(g-7)}{4} - f$ oe A1 oe	
5 (a)		13 500	3	M1 for reading from the graph correctly, eg £50 is 4500 rupees M1(dep) for complete method to find equivalent to £150 eg "4500" × 3 A1 answer in the range 13000 to 14000	
(b)		90	2	M1 for correct method to find the gradient, eg sight of right angled triangle with their height divided by their base using the given scales A1 ft readings from graph	
(c)		Statement	1	B1 Number of rupees per pound oe	

PAPER: AAL20_01						
Question		**Working**	**Answer**	**Mark**	**Notes**	
6	(a)	7, (6), 5, (4), 3, 2, 1	7, 5, 3, 2, 1	2	B2 all values correct (B1 for 3 or 4 correct values)	
	(b)		Graph drawn	2	M1 ft (dep B1 in (a)) for 5 or 6 or 7 points correct A1 cao	
7	(a)		12	1	B1 cao	
	(b)		3	2	M1 for subtracting 2 from both sides or dividing throughout by 3 A1 cao	
	(c)		3.5	2	M1 for correctly isolating terms in m and constants eg $5m - m = 3 + 11$ A1 for 3.5 or $\frac{7}{2}$	
	(d)		−12	3	M1 for a correct first step, eg $\frac{18n+6}{5} = 3(n-2)$ or $\frac{2(9n+3)}{5} = 3n - 6$ or $2(9n + 3) = 15(n - 2)$ or $\frac{(9n+3)}{5} = \frac{3(n-2)}{2}$ M1 for correctly isolating terms in n and constants eg $18n - 15n = -6 - 30$ A1 cao	

PAPER: AAL20_01					
Question	**Working**	**Answer**	**Mark**	**Notes**	
8 (a)		Sketch drawn with (0, 3) labelled	2	B1 for general shape with correct orientation, in correct quadrants and with symmetry in the y-axis or for graph passing through (0, 3) B1 for fully correct sketch with (0, 3) labelled	
(b)		Statement	1	B1 eg y becomes large	
9 (a)		8, 2, −2, −4, −4, −2	2	B2 all values correct (B1 for 4 or 5 correct values)	
(b)		Curve	2	M1 ft (dep B1 in (a)) for 5 or 6 points correctly plotted A1 correct graph with a smooth curve drawn	
(c)		−1.7	2	M1 for a line drawn with equation $y = 6$ oe A1 ft from a quadratic curve	
10 (a)		$7p - 21$	1	B1 cao	
(b)		$2x^2 - xy - 2y$	2	M1 for one correct expansion, eg $2x^2 - 2xy$ or $xy - 2y$ A1 oe	
11		Graph drawn	3	B1 for time taken, 30 mins or $\frac{1}{2}$ hour, may be seen on graph B1 for line of gradient 0 drawn B1 for fully correct graph with labels for time and speed, 80 km/h and 30 mins oe	

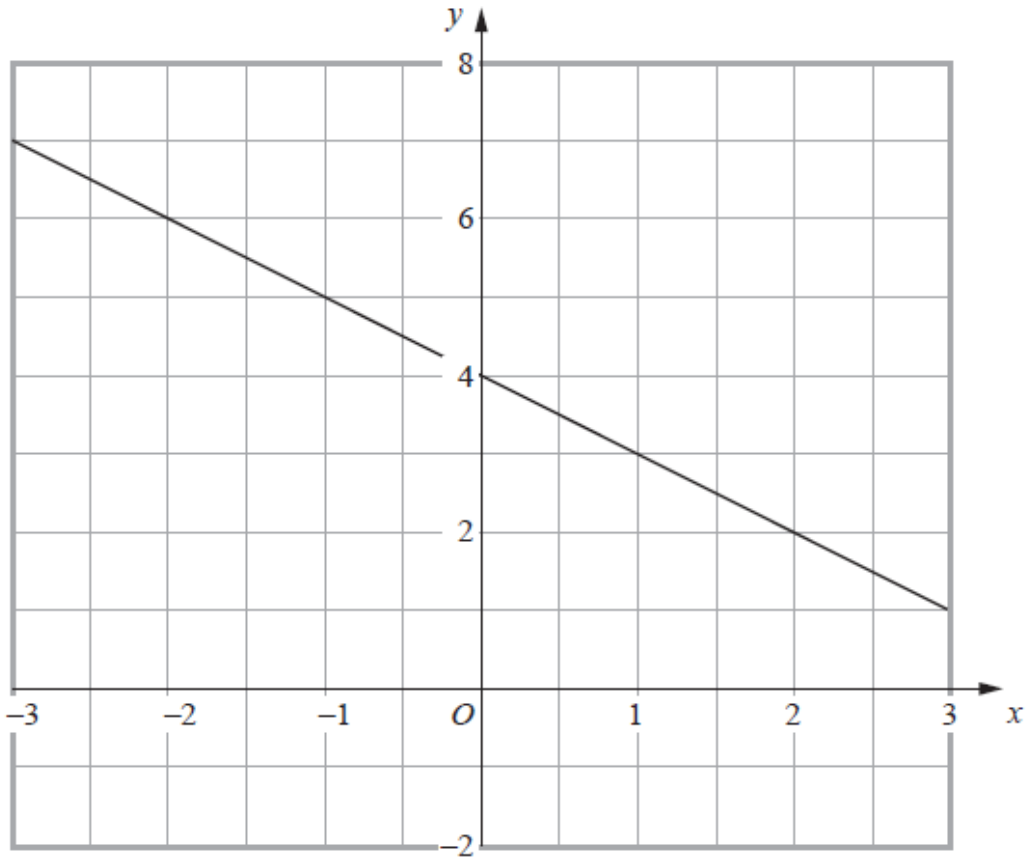
PAPER: AAL20_01					
Question	**Working**	**Answer**	**Mark**	**Notes**	
12 (a)		$4(3 + 2k)$	2	M1 for a correct partial factorisation, eg $2(6 + 4k)$ A1 for $4(3 + 2k)$	
(b)		$3t(t - 3)$	2	M1 for $t(3t - 9)$ A1 for $3t(t - 3)$	
(c)		$xy^2\,(y + x)$	2	M1 for a correct partial factorisation , $xy\,(y^2 + xy)$ or $y^2\,(xy + x^2)$ A1 for $xy^2\,(y + x)$	
13 (a)		3	1	B1 cao	
(b)		Diagram drawn	2	B2 for fully correct solution with all four aspects and no ambiguity Aspect 1: circles at -3 and 4 Aspect 2: circle not filled at -3 Aspect 3: circle filled at 4 Aspect 4: line between -3 and 4 (B1 for two aspects)	
(c)		$x > 0$	1	B1for $x > 0$	
(d)		$r > \frac{9}{2}$	3	M1 for a correct first step eg subtracting 2 from both sides M1 for a complete method or critical value of $\frac{9}{2}$ oe A1 for $r > \frac{9}{2}$ or $r > 4\frac{1}{2}$ or $r > 4.5$	

PAPER: AAL20_01					
Question	**Working**	**Answer**	**Mark**	**Notes**	
14 (a)		Label seen at correct place	1	B1 correct placement of label on graph	
(b)		3	1	B1 cao	
15		$y = -\frac{1}{2}x + 3$	2	M1for a full method to find the gradient, eg sight of right angled triangle with their height divided by their base or state intercept is 3 or for $y = -\frac{1}{2}x + c$, $c \neq 3$ oe or for $y = mx + 3$, $m \neq -\frac{1}{2}$ oe A1 for $y = -\frac{1}{2}x + 3$ oe	
16 (a)		19	2	M1 for $3 \times 7 - 2$ A1 cao	
(b)		33	2	M1 for $97 = 3m - 2$ A1 cao	
(c)		$4n + 8$	2	M1 for $4n$ (+ c) A1 for $4n + 8$ oe	
17 (a)		45	1	B1 cao	
(b)		4	2	M1 for a method to find the gradient eg $2 \div \frac{1}{2}$ or $3 \div \frac{3}{4}$ A1 cao	
(c)		Completes graph	2	B1 for drawing a straight line from (1000,0) to (1030 , 5) B1 ft for drawing a straight line of gradient 0 from (1030, 5) to (1200, 5)	

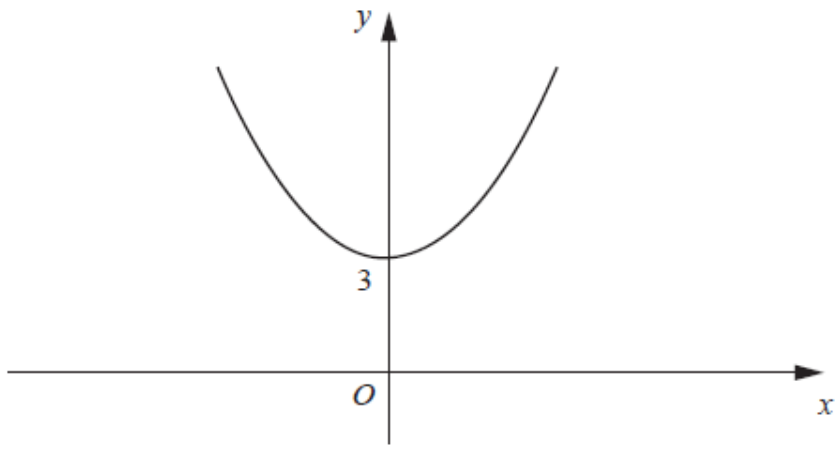
Question 2

	Equation	Expression	Formula
$4(xy + 3y)$		√	
$A = \pi r^2$			√
$x^2 + 3x = 7$	√		
$5ab$		√	

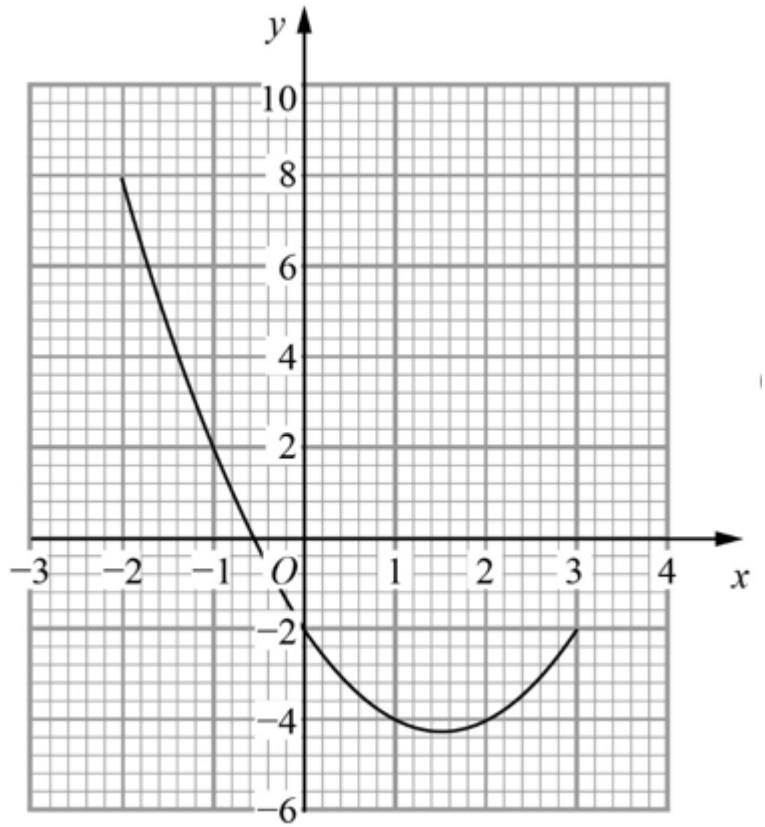
Question 6



Question 8



Question 9



Question 11