OCR
Oxford Cambridge and RSA

GCSE

Mathematics B (Linear)

Component **J567/01:** Mathematics Paper 1 (Foundation)

General Certificate of Secondary Education

Mark Scheme for June 2015

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

1.   Annotations used in the detailed Mark Scheme.

Annotation	Meaning
✓	Correct
✗	Incorrect
BOD	Benefit of doubt
FT	Follow through
ISW	Ignore subsequent working (after correct answer obtained), provided method has been completed
M0	Method mark awarded 0
M1	Method mark awarded 1
M2	Method mark awarded 2
A1	Accuracy mark awarded 1
B1	Independent mark awarded 1
B2	Independent mark awarded 2
MR	Misread
SC	Special case
∧	Omission sign

These should be used whenever appropriate during your marking.

The **M**, **A, B** etc annotations must be used on your standardisation scripts for responses that are not awarded either 0 or full marks.
It is vital that you annotate these scripts to show how the marks have been awarded.
It is not mandatory to use annotations for any other marking, though you may wish to use them in some circumstances.

Subject-Specific Marking Instructions

2.   **M** marks are for using a correct method and are not lost for purely numerical errors.
A marks are for an accurate answer and depend on preceding **M** (method) marks. Therefore **M0 A1** cannot be awarded.
B marks are independent of **M** (method) marks and are for a correct final answer, a partially correct answer, or a correct intermediate stage.
SC marks are for special cases that are worthy of some credit.

Question			Answer	Marks	Part marks and guidance	
1	(a)		15	1		
	(b)		bar of height 9, width 2 in correct position	1		8.75 to 9.25 by eye Width of 2 squares bar sides must be drawn
	(c)		Adventure	1		
	(d)		8	1		
	(e)		2	2	**M1** for 60−(6 +10 + 9+ 15+18) or **B1** for 58	check graph
2	(a)	(i)	20	1		
		(ii)	Rectangle drawn with perimeter of 20	2	**M1** ft rectangle drawn with perimeter of their **(a)(i)**	Not 6 × 4 or 4 × 6 Condone freehand
	(b)		40	4	**B3** for 3 of 62, 34, 26, 22, nfww or 62 and 22 clearly identified as largest/smallest or **B2** for 2 of 62, 34, 26, 22, nfww or **M2** for 3 different rectangles of area 30cm^2 drawn or **B1** for 1 of 62,34, 26, 22, nfww or **M1** for 2 different rectangles of area 30cm^2 drawn or if 0 scored **SC1** for 2 correct factor pairs of 30, perimeters need not be stated.	

Question			Answer	Marks	Part marks and guidance	
3	(a)		1108	1		
	(b)		182	1		
	(c)		602	1		
	(d)		0.072548	1		
	(e)		156	2	**M1** for 0.3 x 520 or **B1** for [10% =] 52 or for 156% or figs 156 as answer Or 364 as answer with 156 seen	
	(f)		8128	3	**M2** for any complete method with 1 arithmetic error or **M1** for any complete method with 2 arithmetic errors	Do not condone conceptual errors
4	(a)		-11, -8, -2, 0, 6	1		Ignore units
	(b)		2	1		
	(c)		23	1		accept -23
5			4 2	2	**B1** each answer	
6	(a)		$2j – 2k$ oe cao	2	**B1** $2j$ or $−2k$ in final answer	$2j + −2k$ scores **B1**
	(b)	(i)	6	1		
		(ii)	5	2	**M1** $7d = 51− 16$ or ft $d = $ 'their 35'/7	Must be equation in d
		(iii)	5000	2	**M1** for $x/100 = 36 + 14$ oe or ft $x =$ *their* 50 × 100	Must be equation in x
	(c)		47	2	**B1** for [5 × 7 =]35 or [3 × 4 =]12 or **M1** for 5 ×7 or 3 × 4	
	(d)		$6x + 12$ cao	1		
7	(a)	(i)	− 14	1		
		(ii)	subtracted 8	1		Need quantity and direction See Appendix
	(b)		2, 8, 14	2	**M1** for 2 correct terms in correct position or **SC1** for -4, 2, 8	

Question			Answer	Marks	Part marks and guidance	
8	**(a)**		7	1		
	(b)		60	1		
9	**(a)**		CSM, MSC, MCS,SCM,SMC only	2	**M1** 3 additional correct	
	(b)		610 cao	1		
	(c)		5 000 000	1		Accept words
10	**(a)**		2 sections shaded oe	1		
	(b)		24	2	**M1** for 36 ÷ 3 or 36 × 2 ÷ 3 oe	12 implies M1
11	**(a)**		Any two of 1, 2, 5 or 10	1		Condone extra if correct
	(b)		6 or −6	1		
	(c)		900	2	**B1** for 1000 or 100	
	(d)		$\frac{1}{7}$	1		Accept 0.142[8…] if calculation seen
	(e)	**(i)**	8	1		
		(ii)	Added before squaring	1		Can be shown numerically
12	**(a)**		220 isw	2	**M1** for 5.5 × 40oe	allow 3 hours 40 Do not penalise incorrect conversion after 220 seen
	(b)		1415 or 2:15 [pm] oe	1		Do not accept 2:15am
	(c)		20	2	**M1** for 1 part = 4, can be implied by 8	
	(d)		6	2	**B1** for 1500 or 0.25[0]	
	(e)		1425 or 2:25 [pm]	1		Do not accept 2:25am
13			£24 as final statement with reference made to either £25 or 20kg or one large bag with no errors	3	**M2** for £24 nfww or **M1** for 5 × 4 or 6 × 4 or recognition 20 kg needed or one large bag last 40 days or one small bag lasts 10 days or large bag £1.25/kg or small bag £1.2[0]/kg	Reference to £25 or 20kg or one large bag may be in the working

Question			Answer	Marks	Part marks and guidance	
14	(a)		48	3	**M1** for 360 – (90+108+30) soi by 132 and **M1 dep** for 180 – *their* 132	
	(b)	(i)	68 **and** alternate [angle]	1	condone Z-angle penalise alternate and corresponding together and penalise alternate and opposite together	condone 'alternative' and 'alternating'. Allow 68 and corresponding providing 68 marked as opposite on diagram at B or D Allow 68 and [angles in a] four sided shape equals 360(angles must be marked on the diagram) Allow [angles in a] triangle equals 180 providing 95 is marked in the correct position
		(ii)	95 one mark for each reason (maximum of **two**) from • angle[s] … triangle [add to 180] • angle[s]… quadrilateral [add to 360] • corresponding or allied [angles] • [vertically] opposite [angles] or angles round a point [add to 360] • angles … line [add to 180]	1 2	or FT 180 – 17 – *their* (b)(i) condone F-angle condone X-angle	accept 4 sided shape/trapezium

Question	Answer	Marks	Part marks and guidance	
15	complete correct net	3	**B2** for correct net with additional rectangles Or 3 or 4 additional correct rectangles in the correct places Or correct outline with missing internal lines **B1** for 3 or 4 additional correct rectangles in the correct places with extra incorrect rectangles or for 1 or 2 additional correct rectangle(s) in the correct place(s)	Condone freehand and dotted internal lines, mark intent, ignore flaps

Question	Answer	Marks	Part marks and guidance
16*	The correct final answer of R[osie] = 17, D[aisy] = 14, T[illy] = 12 and M[olly] = 8 with supporting algebraic working or at least one other numerical attempt seen. Correct spelling and grammar is used and the working is set out in a logical manner that makes it easy to follow.	5	
	The correct final answer is obtained with no other attempts seen.	4 – 3	Three correct algebraic expressions or three different numerical attempts are seen or the daughters are all in the correct order and clearly identified, in the final answer with Rosie as the oldest, then Daisy, then Tilly and then Molly as the youngest.
	Two correct algebraic expressions or two numerical attempts are seen or a realisation that Rosie is the oldest and Molly is the youngest.	2 – 1	One correct algebraic expression or one numerical attempt is seen or a realisation that Rosie is the oldest or Molly is the youngest.
	No worthwhile work attempted.	0	

Question			Answer	Marks	Part marks and guidance	
17	(a)		it is a leading question	1	accept any correct reason	see appendix
	(b)		a suitable question including month with at least four response boxes covering all possibilities from 0 to at least 20 and with no overlaps	2	**B1** for a suitable question with response boxes and one error which would be either less than four boxes or not covering all the possibilities or with overlaps or correct boxes with no/incorrect question.	Can go past 20 condone 1≤5 as meaning 1 ≤ answer ≤ 5 Interpret 20+ as 20 or more Question must have month and imply journeys/trips/train
18	(a)		Four points correctly plotted	2	**B1** for 2 points correctly plotted	Overlay gives guidance, the tolerance ± ½ small square
	(b)		positive	1		ignore embellishments accept +ve
	(c)		the height increases as the width increases oe	1	accept any equivalent response	
	(d)	(i)	correct ruled line of best fit	1	Crossing on "w = 10" 3.5-7.5 and on "w=25" 12.5-17.5	use overlay to judge the validity of the line of best fit
		(ii)	12- 18	1		
	(e)		(18, 3.5) indicated on diagram	1		
19			Correct enlargement (-1,-3) (1,-3) (1,1)	3	**B2** correct centre incorrect sf or 2 correct vertices **B1** correct sf incorrect centre	must be an enlargement in the correct orientation tolerance of 2mm triangle of sf 2 in correct orientation. A translation of the correct triangle tolerance of 2mm
20			127	4	accept any correct method	See additional guidance Mark the method which leads to the final answer

APPENDIX

Exemplar responses for 7aii

Response	Mark
− 8 May be written between the listed numbers	**1**
Subtract 8	**1**
Goes down 8	**1**
26 – 8n oe	**1**
+ 8	**0**
Difference of 8	**0**
Goes down in 8 times table	**0**
I plus 8 each time going backwards	**0**

Exemplar responses for 17a

Response	Mark
It is a leading question	**1**
It is biased	**1**
You are telling them the answer	**1**
Do you agree is the wrong term to use	**0** (not enough)
There are only 3 boxes to tick	**0**
It doesn't say which part of public transport buses or trains	**0**
People may not have used public transport 5 years ago	**0**

Exemplar responses for 18c

Do not allow larger or bigger for height

Response	Mark
Taller trees have wider trunks	**1**
Thicker trees are taller	**1**
Trees with a bigger trunk are taller	**1**
The thicker the tree the higher the trunk	**1**
Both go up	**1**
The higher the wider	**1 BOD**

The smaller the width the shorter the tree	**1**
Positive [correlation]	**0**
The height and the width both change	**0**
Height is greater than the width	**0**
Bigger trees have bigger trunks	**0**
Smaller the width the taller the tree	**0**
The bigger the width of the trunk the larger the tree	**0**
The height and the width both change	**0**

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