GCSE

Application of Mathematics (Linked Pair Pilot)

93701F
Unit 1: Foundation Tier
Mark Scheme

9370
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Version 1.0 Final Mark Scheme

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this Mark Scheme are available from aqa.org.uk

Glossary for Mark Schemes

GCSE examinations are marked in such a way as to award positive achievement wherever possible. Thus, for GCSE Mathematics papers, marks are awarded under various categories.

M	Method marks are awarded for a correct method which could lead to a correct answer.
A	Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.
B	Marks awarded independent of method.
Q	Marks awarded for quality of written communication. (QWC)
M dep	A method mark dependent on a previous method mark being awarded.
B dep	A mark that can only be awarded if a previous independent mark has been awarded.
ft	Follow through marks. Marks awarded following a mistake in an earlier step.
SC	Special case. Marks awarded within the scheme for a common misinterpretation which has some mathematical worth.
oe	Or equivalent. Accept answers that are equivalent. eg, accept 0.5 as well as $\frac{1}{2}$
[a, b]	Accept values between a and b inclusive.
25.3 …	Allow answers which begin 25.3 e.g. 25.3, 25.31, 25.378.
Use of brackets	It is not necessary to see the bracketed work to award the marks.

A1 Foundation Tier

Q	Answer	Mark	Comments
1(a)	Appropriate use of 5 bar gates	Q1	Correct mathematical notation QWC strand (i)
	Tallies correct	B1	
	Frequencies correct 3, 6, 5, 4, 2	B1ft	ft their tallies
1(b)	Correct format/layout for a pictogram with clear labels	B1	
		B2ft	ft their frequencies B1 for all circles or all semi-circles correct or for 4 correct lines
1(c)	'Unlikely'	B1	circled or indicated
1(d)	'Impossible'	B1	circled or indicated
1(e)	'Likely'	B1	circled or indicated

Q	Answer	Mark	Comments
2(a)	11	B1	
2(b)	September	B1	Allow sept
2(c)	Sept 10 + 12 = 22 Oct 15 + 11 = 26 Nov 14 + 16 = 30 Dec 18 + 8 = 26	M1	Attempts to total months At least Oct and Dec seen or any 3 correct totals seen
	Oct and Dec	A1	
2(d)	$20 \times \frac{3}{5}$ or $20 \div 5 \times 3$	M1	
	$18 \times \frac{1}{2}$ or $18 \div 2$	M1	oe
	12 (boys) and 9(girls)	A1	
	Bars drawn to height of their 12 and their 9	B1ft	ft their values if method marks gained. Condone wider bars
	Shading correct and Jan labellled	B1	Award B0B1 for their12 boys and their 9 girls drawn as 9 boys and 12 girls with shading and label

Q	Answer	Mark	Comments
3	Any set of coins totalling £2.65 or Any attempt at addition of exactly 5 coins	M1	eg £2, 50p,10p 5p eg £1 + £1 + 50p + 20p + 5p
	One correct answer	A1	£1,£1, 50p, 10p, 5p or £2, 20p, 20p, 20p, 5p or £2, 50p, 5p, 5p, 5p
	Second correct answer	A1	SC2 for 2 sets without units eg 1,1,50,10,5 and 2,20,20,20,5

Q	Answer	Mark	Comments
4(a)	Tuna & cheese Tuna & beans Tuna and prawn Cheese and beans Cheese and prawn Beans and prawn	B2	B1 for 4 or 5 correct Penalise extras eg 12 combinations is B1B0
4(b)	3	B1ft	ft their a) if at least B1 scored

Q	Answer	Mark	Comments
5(a)	1.5 × 86 or 86 + 43	M1	
	0.5 × 2.80 or 2.80 ÷ 2	M1	
	Their 1.29 + their 1.40	M1	
	2.69	A1	
5(b)	2.31	B1ft	ft £5.00 – their £2.69 from a)
5(c)	10 ÷ 1.79 or 5.5...	M1	
	5	A1	
5(c) Alt	5 × 1.79 (= 8.95) and 6 × 1.79 (= 10.74)	M1	
	5	A1	
5(d)	Tries a combination of at least one pineapple and one lime Or 2 pineapples = £2.50	M1	eg 1.25 + 0.4(0)
	Finds a combination of pineapples and limes that totals between £4 and £5	M1	eg 3 pineapples and 1 lime = 4.15
	2 pineapples and 5 limes	A1	

Q	Answer	Mark	Comments
6	0.15 or $\frac{15}{100}$ seen or used	B1	May be implied by further working or answers
	34 × 0.15 (= 5.1(0)) or 29 × 0.15 (= 4.35)	M1	oe
	8 × their 5.10 + 4 × their 4.35	M1	
	58.20	A1	SC3 for 55.20 SC2 for 55.2 (interchanged 8 and 4)
6 Alt	0.15 or $\frac{15}{100}$ seen	B1	
	34 × 8 + 29 × 4	M1	oe
	Their 388 × 0.15	M1	or 1 – (Their 388 × 0.85)
	58.20	A1	SC3 for 55.20 SC2 for 55.2 (interchanged 8 and 4)

7(a)	230 + 28 × 31	M1	
	1098	A1	
7(b)	650 – 230	M1	
	Their 420 ÷ 28	M1	
	15	A1	

Q	Answer	Mark	Comments
8	$3x$ and x seen	B1	
	$3x - x = 28$	M1	$2x = 28$ implies B1M1
	$(x =)$ 14	A1	
	(14 × 3 =) 42	A1	
8 Alt	2 numbers where one is 3 times the other	B1	
	2 numbers with a difference of 28	M1	
	14	A1	
	(14 × 3 =) 42	A1	

Q	Answer	Mark	Comments
9(a)	Any 2 digit number used for the key	B1	eg 4 | 5 represents 45
	1 | 7 8 2 | 1 4 8 3 | 3 5 7 4 | 2 9 5 | 7	B2	B1 for correct unordered diagram or B1 for any 3 rows correct
9(b)	33	B1	
9(c)	40	B1	
9(d)	Median -Increases	B1	oe eg becomes 34 ft their median
	Range -Stays the same	B1	oe eg No change

Q	Answer	Mark	Comments
10	0.3×70 or $\frac{30}{100} \times (120-50)$ or 30×70 or (£)21 or 2100	M1	oe
	40 + their 21	M1	Cost with Vijay's vans Allow inconsistent units here
	0.48×120	M1	
	61 and 57.6(0)	A1	Cost with U-drive
	A correct conclusion based on their working if all method marks are awarded. (U-Drive if correct working)	Q1	Organised response leading to a correct conclusion QWC strand (iii)

11(a)	= B2*C2	B1	Condone missing equals sign here
11(b)	51.30	B1	
11(c)	D2 + D3 + D4 or sum (D2 + D3 + D4) or sum (D2:D4)	B1	
	= sign used	Q1	Correct mathematical notation QWC strand (i)

12(a)	Histogram or frequency polygon attempted	B1	
	Heights correct (4,10,5,1) Or (8,20,10,2) if frequency density used	B1	
	Correct horizontal position	B1	
12(b)	$\frac{14}{20}$ ($\times$ 100)	M1	oe
	70	A1	SC1 for incorrect value out of 20 converted to a percentage.

Q	Answer	Mark	Comments
13	A correct set of four numbers satisfying the criteria given. 1,1,1,5 or 1,1,2,4 or 2,2,3,9 or 2,2,4,8 or 2,2,5,7	B3	B2 a set of 4 numbers with mean twice the mode but not all single digit or not all greater than zero B1 for evidence of mean found for a set of any 4 numbers **or** a set of 4 single digit numbers which has a mode

Q	Answer	Mark	Comments
14	12 × 1200 (14400)	M1	
	Their 14400 − 9440 (= 4960)	M1dep	
	Their 4960 × 0.2	M1	oe
	(£)992	A1	
14 **Alt**	9440 ÷ 12 (= 675.4...)	M1	
	Their 1200 − their 786.6... (= 413.3)	M1dep	
	Their 413.3 × 0.2 × 12	M1	oe
	(£) 992	A1	Allow [991.99, 992.02] from this method.

Q	Answer	Mark	Comments
15	$x + 2x + 2x - 40 = 500$	B1	
	$5x - 40 = 500$	M1	Collecting like terms ft their initial equation
	$5x = 540$ or $x = \frac{540}{5}$ or $2x = \frac{540}{5} \times 2$	M1	Rearranging for $5x$ or x or $2x$ ft their collection of like terms
	216	A1	
	Organised algebraic response with answer given	Q1	Must solve their equation with max one error QWC strand (ii) SC3 for 216 from a numerical/T&I approach. SC2 for 108from a numerical/T&I approach.