General Certificate of Secondary Education
November 2012

Mathematics (Linear) B **4365**
Paper 1
Foundation Tier

Final

Mark Scheme

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

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' 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.

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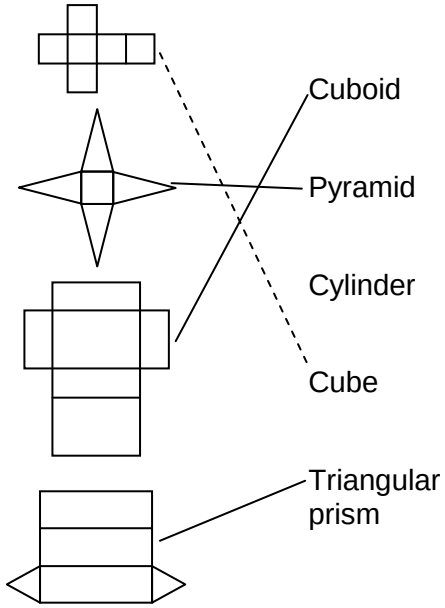
Glossary for Mark Schemes

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.
M dep	A method mark dependent on a previous method mark being awarded.
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.
B dep	A mark that can only be awarded if a previous independent mark has been awarded.
Q	Marks awarded for quality of written communication. (QWC)
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.

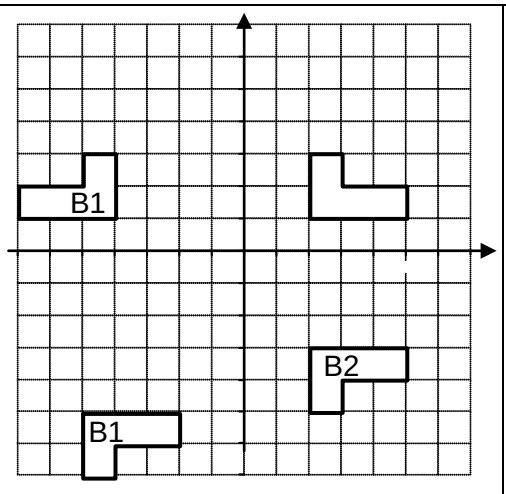
Paper 1 Foundation Tier

Q	Answer	Mark	Comments
1(a)	(1, 6)	B1	
1(b)	Mark at (6, 4)	B1	Accept cross, dot etc Mark must be intended to be on line BC
1(c)	2 × their 4 + 2 × their 5 or 8 + 10	M1	4 or 5 must be correct
	18	A1	SC1 22
2(a)	323	B1	
2(b)	155	B1	
2(c)	520	B1	
2(d)	23	B1	
3	(£) 3.60(p) or 360p in total column	B1	Condone 3.60 but not 360 without units
	(£) 1.20(p) or 120p in first column	B1ft	ft their cost of coffees ÷ 3
4(a)	− 1	B1	
4(b)	175	B1	

Q	Answer	Mark	Comments
5		B3	B2 any two correct B1 any one correct
6(a)	12	B1	
6(b)	35	B1	
6(c)	Men's bar 16 **and** Women's bar 24	B2	B1 for correct height of either bar or for any two bars that add up to 40 or for any two bars with a difference of 8 or for $2x + 8 = 40$ or $2x - 8 = 40$ (oe)
6(d)	(10 + 15 (= 25)) × 5 (= 125)	M1	25 not from incorrect working
	Their 125 – 30	M1	19 × 5 is M2
	95	A1	
7(a)	3	B1	Answer may be seen in Output box if answer line blank
7(b)	50	B2	B1 for 8 + 2 (= 10) (may be seen on diagram) or for their 10 × 5 (may be seen on diagram) or for reverse diagram or reverse operations shown in order SC1 input of 2 or 30 or –0.4

Q	Answer	Mark	Comments
8	20, 20, 10, 5 and 50, 2, 2, 1	B3	B2 50, 5 and 20, 20, 10, 2, 2, 1 B1 for 110 or (£)1.10 or 55 seen (Could be implied by Ben or Yusaf's money totalling 55 p)
9(a)	60(%)	B1	
9(b)	$\frac{8}{10}$ $\frac{20}{25}$	B2	B1 for 1 correct answer with at most 1 incorrect answer or for 2 correct and 1 incorrect
9(c)	$70 \div 10 \times 4$	M1	oe
	28	A1	SC1 answer of 42 without 28 seen
***10**	$800 \div 10$ (= 80) **or** $800 \div 5$ (= 160)	M1	oe
	$800 \div 10$ (= 80) **and** $800 \div 5$ (= 160) or their tax = $2 \times$ their insurance	M1	240 is M2
	560	A1	
	Complete method for finding the money left	Q1	Strand (iii) Must have gained one M1 and have subtracted the total of their two values from 800
	Alternative method		
	$\frac{1}{10} + \frac{1}{5}$ (= 0.3)	M1	oe
	Their 0.3×800 (= 240)	M1	oe
	560	A1	
	Complete method for finding the money left	Q1	Strand (iii) Must have gained one M1 and have subtracted the total from 800
11(a)	$6a$	B1	Accept $6 \times a$ or $a \times 6$ but not $a6$
***11(b)**	$6mp$	Q1	Strand (i) Accept $6pm$ but not with $\times$ signs $pm6$ or $mp6$ or $6(mp)$ Q0

Q	Answer	Mark	Comments
12	Adds at least 4 fence sections using both sizes and **gives a total** Must use **correct** multiples < 36	M2	M1 At least two of 10, 15, 20, 25, 30, 35, 16, 24, 32 Can use diagrams or tally marks
	4 @ 5-feet lengths 2 @ 8-feet lengths	A1	SC2 20 @ 5-feet and 16 @ 8-feet SC2 8 8 5 5 5 5
	Alternative method 1		
	Adds together 5 and 8 (= 13) **and** Subtracts multiple(s) of their 13 from 36 eg 36 – 13 (= 23) or 36 – 26 (= 10)	M1	
	Tests the remainder against 5 or 8 times table eg 10 = 2 × 5	M1dep	
	4 @ 5-feet lengths 2 @ 8-feet lengths	A1	
	Alternative method 2		
	Subtracts a multiple of 8 from 36 and divides remainder by 5 eg 36 – 8 = 28, 28 ÷ 5	M1	Subtracts a multiple of 5 from 36 and divides remainder by 8 eg 36 – 5 = 31, 31 ÷ 8
	Repeats for a different multiple of 8	M1dep	Repeats for a different multiple of 5
	4 @ 5-feet lengths 2 @ 8-feet lengths	A1	
13	14 and 22 **chosen** or their 22 – their 14 with either correct	M1	
	8	A1	
14	4 × –2 (+) 3 × 5 or –8 or 15	M1	oe
	7	A1	

Q	Answer	Mark	Comments
15	$5x - 15 - 2x + 2$	M1	Attempt to expand both brackets to 4 terms with at least 3 correct
	$5x - 15 - 2x + 2$	A1	A1 if fully correct
	$3x - 13$	A1ft	ft on one error
16(a)	5	B1	
16(b)	46	B1	Not 4|6
16(c)	38	B1	Not 3|8
17(a)	64	B1	
17(b)	116	B1	
17(c)	Corresponding	B1	Any unambiguous indication eg circles correct word
18(a)	Translation **and** 7 right, 2 down or $\begin{pmatrix} 7 \\ -2 \end{pmatrix}$	B2	B1 Translation or 7 right or 7 $\rightarrow$ or $\begin{pmatrix} 7 \\ y \end{pmatrix}$ or 2 down 2 $\downarrow$ or $\begin{pmatrix} x \\ -2 \end{pmatrix}$ or $\begin{pmatrix} -7 \\ 2 \end{pmatrix}$ or $\begin{pmatrix} -2 \\ 7 \end{pmatrix}$ or (7, –2)
18(b)		B2	B1 for reflection of shape B in $x = -1$ or for reflection of shape A in $y = -1$ or for reflection of B in the bottom right quadrant, including reflection in the x-axis

Q	Answer	Mark	Comments
19(a)	Fills in totals on grid for at least 3 correct 9s	M1	
	9	A1	$\frac{8}{64}$ is A0 even if 9 stated
	Alternative method		
	Identifies 9 as most likely total eg (1, 8), (2, 7), (7, 2) etc for at least 3 totals	M1	
	9	A1	$\frac{8}{64}$ is A0 even if 9 stated
19(b)	Fills in 4, 5 or 6 correct totals on grid for 2, 3, 15 and 16	M1	Identifies at least 4 of (1, 1), (1, 2), (2, 1), (7, 8), (8, 7) or (8, 8) with no wrong pairs Need not be as a bracket eg 1 + 1 Totals need not be seen
	Denominator of 64 or numerator of 6	M1	64 choices identified
	$\frac{6}{64}$	A1	Any fraction, decimal (0.09375) or percentage equivalent to $\frac{6}{64}$ is M2A1
	Alternative method		
	$\frac{1}{8} \times \frac{1}{8}$	M1	
	$6 \times \frac{1}{8} \times \frac{1}{8}$	M1	oe
	$\frac{6}{64}$	A1	oe

Q	Answer	Mark	Comments
20	$6x + 2x + 6x + 2x$ (=$16x$)	M1	
	Their $16x = 24$	M1dep	$8x = 12$ is M2
	1.5 (oe) or 9 after 1.5 seen	A1	oe SC1 $14x = 24$ leading to $x = 24/14$ oe
	Alternative method		
	Guess a value and multiplies correctly by 16	M1	$x = 1$ gives 16 $x = 2$ gives 32
	Guesses a second value nearer to or brackets the correct answer and multiplies correctly by 16	M1dep	
	1.5 or 9 after 1.5 seen	A1	oe
21	(Angle *ADB* =) 90 – 50 (=40) or (Angle *ADB* =) 180 – (90 + 50) (=40)	M1	May be on diagram Accept *D* = 40 or obtuse angle at *D* marked or labelled as 140
	(180 – Their *CDB*) ÷ 2 or their *ADB* ÷ 2	M1dep	Their *CDB* must be from 180 – their *ADB* Must be complete method
	20	A1	
	Alternative method		
	$50 + y + y = 90$	M1	oe $90 + 50 + y + y = 180$
	$2y = 40$	M1	$y = (180 – 140) \div 2$
	20	A1	