

Mark Scheme (Results)

Summer 2009

GCSE

GCSE Mathematics (Linear) - 1380
Paper: 1380/1F

GCSE MATHEMATICS 1380 (LINEAR)
RESULTS MARKSCHEME

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

Probability answers must be given as fractions, percentages or decimals. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).

Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.

If a probability answer is given on the answer line using both incorrect and correct notation, award the marks.

If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

8 Linear equations

Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded.

9 Parts of questions

Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

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Question		Working	Answer	Mark	Notes
1	(a)		8	1	B1 cao
	(b)		3	1	B1 cao
	(c)		3 circles 2.5 circles	2	B1 cao B1 cao
2		$30 - (16 + 9)$	5	2	M1 $30 - "(16 + 9)"$ or $"30 - 16"$ – 9 or $"30 - 9"$ – 16 A1 cao
3	(a)		30	1	B1 for 30
	(b)		5	1	B1 for 5
4	(a)		Correct line	1	B1 For a single line of length in the range 6.8cm to 7.2cm drawn with or without using the given point P
	(b)		Correct point	1	B1 for point Q identified on their line within the range 2.8 cm to 3.2 cm from P
5	(a)		116	1	B1 for 116 [accept 114 if 116 seen on the dotted line in the sequence]
	(b)		112	1	B1 cao
	(c)		it is odd (and all the terms are even)	1	B1 for a correct reason
6	(a)		16	1	B1 cao
	(b)		12 cm^2	2	B1 for 12 cao, B1 (indep) for cm^2
	(c)		15	2	M1 for 5×3 A1 cao [SC: B1 for 10, 13 or 14]

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Question		Working	Answer	Mark	Notes
7	(a)		08 30	1	B1 for 08 30 oe
	(b)		17	1	B1 cao
	(c)		10 15	1	B1 for 10 15 oe
8	(a)		Four thousand, one hundred and seventeen	1	B1 for four thousand, one hundred and seventeen oe
	(b)		4100	1	B1 for 4100 in figures or words or 41 hundred
9	(a)		8	1	B1 cao
	(b)		C	1	B1 for C or pyramid
10	(a)		58	1	B1 57 to 59 (not inclusive)
	(b)		3.6	1	B1 3.5 to 3.7 (not inclusive)
	(c)	$7 - 3.6$	3.4	1	B1 for 3.3 to 3.5 (not inclusive) or ft on 7 - "(b)" provided "b" < 7
11	(a)		(4, 6)	1	B1 cao
	(b)		(0, 3)	1	B1 cao
	(c)	$\left(\frac{0+4}{2}, \frac{3+6}{2}\right)$	(2, 4.5)	2	B2 for (2, 4.5) ± 0.2 on each coordinate [B1 for (2, b) $b \neq 4.5$ or (a, 4.5) $a \neq 2$ or (4.5, 2) or $\left(\frac{0+4}{2}, \frac{3+6}{2}\right)$ seen ± 0.2 on each coordinate]

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Question	Working	Answer	Mark	Notes	
12	(a)	– 4	1	B1 for -4°C or Edinburgh	
	(b)	7	1	B1 for 7 (accept -7)	
	(c)	2	1	B1 for 2 or Leeds	
13	(a)	Impossible	1	B1 cao	
	(b)	Even	1	B1 cao	
	(c)	Certain	1	B1 cao	
14	(a)	12	1	B1 cao	
	(b)	24	1	B1 cao	
	(c)	49	1	B1 cao	
15	(a)	$4x$	1	B1 for $4x$ (accept $4 \times x$, $x \times 4$, $x4$)	
	(b)	y^3	1	B1 cao	
	(c)	$2x + 8y$	2	B2 for $2x + 8y$ oe [B1 for $2x$ or $8y$ seen] {Note: $-8y$ seen with no working gets B0 $4x + 2x = 6x$ gets B0}	
16	(a)	Diagram (<i>overlay</i>)	2	B2 within guidelines of the overlay (B1 for exactly one given angle correctly drawn within guidelines of overlay)	
	(b)	90	1	B1 for an angle in range 86 to 94 or ft 'angle' measured correctly within $\pm 2^{\circ}$	

1380/1F																					
Question		Working	Answer	Mark	Notes																
17		$20 \times 36 = 720$ $4 \times 36 = 144$ <table border="1"><tr><td></td><td>30</td><td>6</td><td></td></tr><tr><td>20</td><td>600</td><td>120</td><td>720</td></tr><tr><td>4</td><td>120</td><td>24</td><td>144</td></tr><tr><td></td><td>720</td><td>144</td><td></td></tr></table> 3 6 2 4		30	6		20	600	120	720	4	120	24	144		720	144		864	3	M1 for a complete method with relative place value correct. Condone 1 multiplication error, addition not necessary. M1 (dep) for addition of the appropriate elements of the calculation. [Note: Repeated addition of 24 lots of 36 (36 lots of 24) gets M1 only] A1 cao
	30	6																			
20	600	120	720																		
4	120	24	144																		
	720	144																			
18			Ben with a valid reason	2	B2 for Ben and a valid reason, eg ‘it should be 180’ or ‘they are not supplementary (allied, co-interior)’ oe This could be implied by 184 or 84 or 92 seen [B1 for Ben and 88+96 or 180 - 88 or 180 - 96 seen or for just a valid reason given (eg without Ben or with James)]																
19	(a)		56 Reason	2	B1 56° cao B1 sum of angles on a straight line is 180°																
	(b)		22	1	B1 cao																

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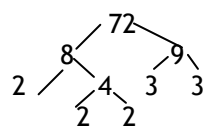
1380/1F					
Question		Working	Answer	Mark	Notes
20	(a)	$\frac{90}{600}$	$\frac{3}{20}$	2	$\frac{90}{600}$ M1 $\frac{3}{20}$ A1 $\frac{3}{20}$ cao [SC: B1 for 0.15 or 15% if M0 scored]
	(b)	$\frac{180}{600} \times 100$ OR $\frac{180}{600} = \frac{30}{100}$	30	2	$\frac{180}{600} \times 100$ M1 $\frac{30}{100}$ A1 cao OR $\frac{180}{600} = \frac{30}{100}$ M1 $\frac{30}{100}$ or attempt to cancel to 100 A1 cao
	(c)	$600 - (90 + 180) = 330$ blue or green $330 \div 3$	110	2	M1 $[600 - (90 + 180)] \div 3$ A1 cao [SC: B1 for an answer of 140 or 170 if M0 scored]

1380/1F																			
Question		Working			Answer	Mark	Notes												
21	(a)	<table border="1"><tr><td>15</td><td>25</td><td>14</td><td>54</td></tr><tr><td>22</td><td>8</td><td>16</td><td>46</td></tr><tr><td>37</td><td>33</td><td>30</td><td>100</td></tr></table>			15	25	14	54	22	8	16	46	37	33	30	100	Table	3	B3 for all 5 correct (B2 for 3 or 4 correct) (B1 for 1 or 2 correct)
	15	25	14	54															
	22	8	16	46															
37	33	30	100																
(b)					$\frac{37}{100}$	1	$\frac{37}{100}$ oe B1												
(c)					$\frac{24}{46}$	2	B2 for $\frac{''46'-22''}{'46'}$ oe, ft from no of girls (B1 16 + 8 or 24 or '46' seen)												
22					$2c + 4r$	2	B2 for $2c + 4r$ oe [B1 for $2c$ or $4r$ oe seen] Ignore any Left Hand Side = $2c + 4r$ {Note: ignore units or use of 'p'}												
23		$360 - (120 + 140 + 58)$			42	2	M1 $360 - (120 + 140 + 58)$ or equivalent) or for $(a + 58 + 120 + 140 = 360)$ oe seen A1 cao [Note: The subtraction MUST be from 360]												

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Question	Working	Answer	Mark	Notes	
24	(a)	$4x = 9 - 1$ $\frac{4x}{4} + \frac{1}{4} = \frac{9}{4}$	2	M1 for $4x = 9 - 1$ or $\frac{4x}{4} + \frac{1}{4} = \frac{9}{4}$ or a clear intention to either subtract 1 from both sides of the equation or to divide each term by 4 A1 for 2 (accept $\frac{8}{4}$)	
	(b)	$2y = 12 + 1$ $\frac{2y}{2} - \frac{1}{2} = \frac{12}{2}$	2	M1 $2y = 12 + 1$ or $\frac{2y}{2} - \frac{1}{2} = \frac{12}{2}$ or a clear intention to either add 1 to both sides of the equation or divide each term by 2 A1 6.5 oe (accept $\frac{13}{2}$)	
25	(a)		2	B2 for a fully correct rotation [B1 for correct shape with correct orientation OR a 90° anticlockwise rotation about O OR a 180° rotation about O OR for any 3 correct sides in the correct position]	
	(b)		2	B1 for translation B1 (indep) for $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$ or 3 right and 1 down	

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Question		Working	Answer	Mark	Notes
26	(a)		opp sides are equal	1	B1 for a correct explanation
	(b)	$4x - 2x = 12 - 1$	5.5	2	M1 for $4x + 1 - 1 - 2x = 2x + 12 - 1 - 2x$ oe A1 for 5.5 or $11/2$ or $5\frac{1}{2}$
	(c)	$'5.5' \times 2 + 4 \times '5.5' + 1 + 2 \times '5.5' + 12$	57	2	M1 for correct substitution of $x = '5.5'$ into the four expressions to find the sum of FOUR sides or $8x + 13$ seen A1 ft
27	(a)			2	M1 rectangle with either correct width or height or any square A1 cao
	(b)			2	B2 for a correct sketch (B1 any 3-D sketch of no more than 4 faces seen, with a trapezoidal face)
28	(a)			2	B1 'What type of magazine do you read?'
	(b)		How many magazines have you read in the last week 0 ☐ 1 ☐ 2-3 ☐ >3 ☐	2	B1 for at least 2 magazines identified in response boxes [Note: B0 for any data collection sheet/chart B1 Relevant question that refers to a time period. B1 for at least 3 mutually exclusive response boxes (need not be exhaustive)]

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29	(a)		15.456	1	B1 cao
	(b)		0.15456	1	B1 cao
	(c)		3220	1	B1 cao
30	(a)	$x^2 = 72 \div 2$	6	2	M1 for $72 \div 2$ or 36 seen A1 6 or -6 or ± 6
	(b)	$72 = 2 \times 36 = 2 \times 2 \times 18$ $= 2 \times 2 \times 2 \times 9$ 	$2 \times 2 \times 2 \times 3 \times 3$	2	M1 for a systematic method of at least 2 correct divisions by a prime number oe factor tree or a full process with one calculation error; can be implied by digits 2, 2, 2, 3, 3 on answer line A1 for $2 \times 2 \times 2 \times 3 \times 3$ or $2^3 \times 3^2$ oe [Note $1 \times 2 \times 2 \times 2 \times 3 \times 3$ gets M1 A0]