

Mark Scheme (Results)

June 2011

GCSE Mathematics (1380)
Paper 1F (Non-Calculator)

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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

ft – follow through

isw – ignore subsequent working

SC: special case

oe – or equivalent (and appropriate)

dep – dependent

indep - independent

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

10 Money notation

Accepted with and without the “p” at the end.

11 Range of answers

Unless otherwise stated, when any answer is given as a range (e.g. $3.5 - 4.2$) then this is inclusive of the end points (e.g. 3.5, 4.2) and includes all numbers within the range (e.g. 4, 4.1).

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Question		Working	Answer	Mark	Notes
1	(a)		16	1	B1 cao
	(b)		France	1	B1 cao
	(c)		Italy	1	B1 cao
2	(a)		one thousand three hundred (and) forty five	1	B1 cao
	(b)		12 750	1	B1 cao
	(c)		4700	1	B1 cao
3	(a)(i)		rectangle	2	B1 for rectangle (accept parallelogram)
	(ii)		kite		B1 cao
	(b)		parallelogram	1	B1 for a parallelogram or rectangle or square or rhombus (parallel sides need not be marked)

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Question		Working	Answer	Mark	Notes
4	(a)	4×6.20	24.80	2	M1 for 4×6.2 or $6.2 + 6.2 + 6.2 + 6.2$ oe A1 for 24.8(0) (accept 24.80p)
	(b)	$15.50 \div 6.20$	2.5	2	M1 for $15.5 \div 6.2$ or $15.5 - 6.2 - 6.2$ or $6.2 + 6.2 + '3.1'$ A1 for 2.5 or $2\frac{1}{2}$ or 2 h 30(m) (condone 2:30 but not 2.30)
5	(a)(i)		20	2	B1 cao
	(ii)		12		B1 cao
	(b)		16	1	B1 cao
6	(a)		Blue = 6 Green = 9	2	B1 for 6 B1 for 9
	(b)		bar of height 10 bar of height 5	2	B1 for bar of height 10 B1 for bar of height 4.2 – 5.8

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Question		Working	Answer	Mark	Notes
7	(a)		$3\frac{1}{3}$	1	B1 cao
	(b)	$\frac{3}{5} = \frac{9}{15}$ $\frac{2}{3} = \frac{10}{15}$ OR $\frac{3}{5} = 0.6$ or 60% $\frac{2}{3} = 0.66(6\ldots)$ or 66(.6..) % OR e.g. total = 60 $\frac{3}{5} \times 60 = 36$ $\frac{2}{3} \times 60 = 40$	$\frac{2}{3} + \text{reason}$	3	M1 for an attempt to convert both fractions to a common denominator, one of which should be correct, e.g. $\frac{9}{15}$ or $\frac{10}{15}$ A1 for both correct A1 for both correct and $\frac{2}{3}$ oe correctly identified OR M1 for an attempt to convert both fractions to decimals or percentages, e.g. 0.6 or 0.66(6....) OR 60(%) or 66(.6...)(%), one of which should be correct A1 for both correct A1 for both correct and $\frac{2}{3}$ oe correctly identified OR M1 for $\frac{3}{5} \times N$ and $\frac{2}{3} \times N$, where N = their total A1 for both correct A1 for both correct and $\frac{2}{3}$ oe correctly identified
	(c)	$\frac{4 \times 3}{5 \times 8} = \frac{12}{40}$	$\frac{3}{10}$	2	M1 for $\frac{4 \times 3}{5 \times 8}$ or e.g. $\frac{32 \times 15}{40 \times 40}$ or $\frac{12}{40}$ oe or $\frac{1}{5} \times \frac{3}{2}$ A1 cao

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Question		Working	Answer	Mark	Notes
8	(a)		6	1	B1 cao
	(b)		14.1	2	B1 for identifying an estimate in range $13 \leq n \leq 15$, accept e.g. $14^2 (=196)$ or $\sqrt{169} = 13$ B1 for a correct reason or supportive working, e.g. $14^2 = 196$ or $13^2 = 169$ so bigger than 13
9	(i)		parallel lines marked	3	B1 for parallel lines marked with arrows
	(ii)		obtuse angle marked		B1 for obtuse angle marked <i>O</i>
	(iii)		42		B1 for 40 – 44
10	(a)(i)		27	2	B1 cao
	(ii)		add 5 each time		B1 for a correct reason, e.g. add 5 (each time) or numbers end (2,) 7, 2, 7 (accept goes up in 5s)
	(b)		52	1	B1 cao
	(c)		reason	1	B1 for a correct explanation, e.g. the hundredth term is 502 or terms end with 2 or 7 or no 4s in list

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Question		Working	Answer	Mark	Notes																																							
11	(a)		153	1	B1 cao																																							
	(b)	354 ×26 7080 2124 9204 <table><tr><td></td><td>300</td><td>50</td><td>4</td><td></td></tr><tr><td>20</td><td>6000</td><td>1000</td><td>80</td><td></td></tr><tr><td>6</td><td>1800</td><td>300</td><td>24</td><td></td></tr><tr><td></td><td>7800</td><td>1300</td><td>104</td><td></td></tr></table> 7800 + 1300 + 104 = 9204 20×354=7080 6×354=2124 7080 + 2124 = 9204 <table><tr><td></td><td>3</td><td>5</td><td>4</td><td></td></tr><tr><td></td><td>0 6</td><td>1 0</td><td>0 8</td><td>2</td></tr><tr><td></td><td>1 8</td><td>3 0</td><td>2 4</td><td>6</td></tr><tr><td>9</td><td>2</td><td>0</td><td>4</td><td></td></tr></table> <td>9204</td> <td>3</td> <td> M1 for a complete method with relative place value correct- condone one multiplication error addition not necessary OR M1 for complete grid. Condone one multiplication error, addition not necessary OR M1 for sight of complete partitioning method. Condone one multiplication error. Final addition not necessary. M1 (dep) for addition of appropriate elements of the calculation A1 cao (SC B1 for attempting to add 26 lots of 354) </td>		300	50	4		20	6000	1000	80		6	1800	300	24			7800	1300	104			3	5	4			0 6	1 0	0 8	2		1 8	3 0	2 4	6	9	2	0	4		9204	3
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	1 8	3 0	2 4	6																																								
9	2	0	4																																									

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Question		Working	Answer	Mark	Notes
12	(a)		square based pyramid	1	B1 for (square based) pyramid
	(b)		5	1	B1 cao
	(c)		8	1	B1 cao
13	(a)		cross at 0	1	B1 cao
	(b)		cross at 1	1	B1 cao
	(c)		cross at 1/6	1	B1 for cross in guidelines (overlay)
14			(Output =) 20 (Input =) 15	2	B1 for 20 B1 for 15
15	(a)	$8.2 \times 10000 \div 100$	820	2	M1 for $8.2 (\pm 0.2) \times 10000 \div 100$ oe A1 for 800 – 840 (SC B1 for $8.2(\pm 0.2) \times 10^n$, where $n \geq 1$, e.g. 82)
	(b)		130	1	B1 for 128 – 132
16	(a)		11 49	1	B1 cao
	(b)		14	1	B1 cao
	(c)		10 03	1	B1 cao

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Question		Working				Answer	Mark	Notes													
17		$\frac{7 \times 20}{0.5}$				280	3	M1 for any two of 7, 20 and 0.5 seen or 140 or 40 or 14 M1 for 14×20 or 140÷0.5 or 140×2 or 7×40 or 7.2×40 or 144÷0.5 A1 for 280 – 300													
18	(a)	<table><tr><td>3</td><td>3</td><td>(19)</td><td>(25)</td></tr><tr><td>(4)</td><td>(5)</td><td>16</td><td>25</td></tr><tr><td>(7)</td><td>8</td><td>35</td><td>(50)</td></tr></table>	3	3	(19)	(25)	(4)	(5)	16	25	(7)	8	35	(50)				Table	3	B3 for all 6 correct (B2 for 4 or 5 correct) (B1 for 2 or 3 correct)	
	3	3	(19)	(25)																	
	(4)	(5)	16	25																	
(7)	8	35	(50)																		
(b)(i)					7/50	1	B1 for 7/50 oe														
	(ii)					9/50	1	B1 for 9/50 oe													
19		50×160=8000 35/100×8000=2800 8000+2800=10800 10800/400				27	4	M1 for 50×160 (=8000) M1 for 35÷100×'50×160' (=2800) oe, e.g. 800+800+800+400 M1 (dep on previous Ms) for 10800÷400 oe or ('8000'+ '2800') ÷ 400 oe A1 cao M1 for $\frac{35}{100} \times 160$ oe, e.g. 16+16+16+8 (=56) M1 for (160+'56') × 50 (=10800) M1(dep on previous Ms) for '10800' ÷ 400 oe A1 cao													

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Question		Working	Answer	Mark	Notes
20		$184 \times 5 / 8 = 115$ $120 \times 8 / 5 = 192$	Car B	2	M1 for $184 \times 5 \div 8 (=115)$ or $120 \times 8 \div 5 (=192)$ oe A1 for Car B and 115 or 192 OR M1 for $184 \div 8 (=23)$ and $120 \div 5 (=24)$ A1 for Car B and 23 and 24 OR M1 for $184 \times 5 (=920)$ and $120 \times 8 (=960)$ A1 for Car B and 920 and 960 SC B1 for sight of a correct conversion factor 5miles = 8km or 1mile = 1.6km oe
21	(a)	$2 \times 5 + 3 \times -1$	7	2	M1 for 2×5 and 3×-1 or 10 and -3 seen A1 cao
	(b)	$3 \times -4 \times -4$	48	2	M1 for $3 \times (-4)^2$ or $3 \times -4 \times -4$ or 3×16 or 3×-16 or -12×-4 or -48 A1 cao

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Question	Working	Answer	Mark	Notes
22	$1 - (3/8 + 40/100)$ $= 1 - (300/800 + 320/800)$ $= 1 - 620/800$ $= 180/800$ OR $1 - 0.4 - 0.375 (=0.225)$ OR e.g. $N=80$ $\frac{3}{8} \times 80 (= 30)$ $\frac{40}{100} \times 80 (= 32)$ $80 - 30 - 32 = 18$ $\text{ans} = \frac{18}{80}$	9/40	3	M1 for $3 \div 8$ or 0.375 or 37.5(%) or $\frac{40}{100}$ oe or 0.4seen M1 (dep) for $1 - \frac{3}{8} - \frac{40}{100}$ oe or $100(\%) - 40(\%) - '37.5'(\%)$ or $1 - '0.375' - '0.4'$ A1 for $\frac{9}{40}$ oe or 22.5% or 0.225 OR M1 for $\frac{3}{8} \times N$ and $\frac{40}{100} \times N$, where N = their total M1 (dep) for $N - \frac{3}{8} \times N - \frac{40}{100} \times N$ A1 for $\frac{9}{40}$ oe or 22.5% or 0.225

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Question		Working	Answer	Mark	Notes
23	(a)		reflection	2	B2 for vertices of shape plotted at $(-3, 2), (-3, 3), (-5, 3), (-6, 2.5), (-5, 2)$ (B1 for a reflection in any vertical or horizontal line)
	(b)		translation, $\begin{pmatrix} -6 \\ -1 \end{pmatrix}$	2	B1 for translation B1 for 6 left and 1 down OR $\begin{pmatrix} -6 \\ -1 \end{pmatrix}$ Note: B0 if more than one transformation given
24	(a)		positive correlation	1	B1 for positive correlation or e.g. as the number of pages increases the time taken increase or the longer the book the more time it takes to read oe
	(b)		7.5	2	B2 for 7 – 8 (B1 for 6 – 9)
25	(i)		55	1	B1 cao
	(ii)		corresponding angles	1	B1 for corresponding (angles), accept F angles.
26	(a)		$x^2 + 2x$	2	M1 for $x \times x + x \times 2$ or two term expression including $x \times x (= x^2)$ or $x \times 2 (= 2x)$ A1 cao
	(b)		$5(3x - 2)$	2	B2 cao (B1 for $5(3x + a)$ or $5(bx - 2)$), where $a \neq 0$ and $b \neq 0$
	(c)	$x^2 + 3x - 4x - 12$	$x^2 - x - 12$	2	M1 for all 4 correct terms ignore signs or 3 out of 4 terms correct from $x^2, 3x, -4x, -12$ A1 for $x^2 - x - 12$ (accept $x^2 - 1x - 12$)

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Question	Working	Answer	Mark	Notes
27	P: T: B = 1: 3: 6 $54 \div 10 \times 6$ OR e.g. $T = 3P$ $B = 2T$ So, $B = 2(3P) = 6P$ $P + T + B = P + 3P + 6P = 10P$ $P = 54 \div 10 = \text{£}5.40$ $B = 6 \times \text{£}5.40$	32.40	3	M1 for 1 : 3 : 6 or any three numbers in the ratio 1:3:6 in any order M1 for $54 \div (1 + 3 + 6) \times 6$ A1 for 32.4(0) Alternative M1 for 1: 3: 6 oe or $P + 3P + 6P (=10P)$ oe, e.g. $T/3 + T + 2T (=10T/3)$ or e.g. $B/6 + B/2 + B (=10B/6)$ or 5.4(0) or 16.2(0) seen M1 for $54 \div 10 \times 6$ or $[54 \div \frac{10}{3}] \times 2$ or $54 \div \frac{10}{6}$ oe A1 for 32.4(0) OR M1 for a partial decomposition of £54 in ratio 1:3:6, e.g. (£)5 + (£)15 + (£)30 (= (£)50) M1 for a decomposition of the remaining amount in ratio 1:3:6, e.g. 40(p) + 120(p) + 240 (=400(p)) A1 for 32.4(0)

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Question		Working	Answer	Mark	Notes
28			question + response boxes	2	B1 for an appropriate question with a specific time frame, e.g. each day B1 for at least 3 non-overlapping boxes (do not accept inequalities) NB do not accept frequency tables or data collection sheets
29		$(7 \times 2 + 2 \times 5) \times 200 = 4800$ 4800×8	38 400 g	5	M1 for 7×2 or 2×5 or 7×7 or 5×5 or 2×2 M1 for '7×2' + '2×5' oe or '7×7' – '5×5' M1(dep on first M) for '24' $\times$ 200 or '0.0024' $\times$ 2 M1 for '4800' $\times$ 8 or '0.0048' $\times$ 8 000 000 or '0.0048' $\times$ 8000 A1 for 38 400g or 38.4kg (SC B3 for any answer including digits 384)

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