Mark Scheme (Results)

November 2011

GCSE Mathematics (1380)
Paper 1F

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

1380_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)		1284	1	B1 cao
	(b)		Four thousand and sixty seven	1	B1 for four thousand (no hundreds) and sixty seven
	(c)		Twenty (20)	1	B1 For twenty or 20 or 2 tens
	(d)		1500	1	B1 cao
2	(a)	960 − 23 + 16	953	2	M1 960 − 23 + 16 oe A1 cao
	(b)	Non – lesson time = 60 min Total time = 3.5 + 3.5 = 7.0 Lesson Time = "7" – "1"	6 hours	3	M1 for attempting to find the length of the total day by 3:30 – 8:30 or counting on from 8:30 to 3:30 or sight of 7 (hours) or for an attempt to find the total length of non-lesson, 40 + 20 (= 60) M1 (dep) for a correct complete method to find the total length of lesson time,eg "7" (hours) − "1" (hour) A1 cao [Note: 7 seen on the answer line with no working gets NO marks]
3	(a)		12	1	B1 cao
	(b)	15–8	7	1	B1 cao
	(c)		Bristol	1	B1 cao
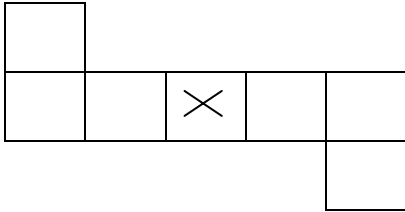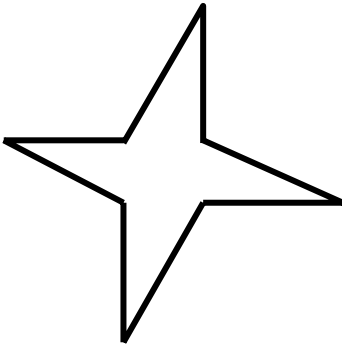
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Question		**Working**	**Answer**	**Mark**	**Notes**
4	(a)		24	1	B1 cao
	(b)		Add 3	1	B1 add 3 or +3 oe
	(c)		7, 15	1	B1 cao (ignore anything past 15)
5	(a)		Leeds	1	B1 for Leeds (accept –12)
	(b)		4	1	B1 accept – 4
	(c)		7	1	B1 cao
	(d)		3 am	1	B1 3 am oe
6	(i)		1.5 – 2.1	3	B1 1.5 – 2.1 m oe (5ft to 6ft 6 inches) Correct units must be quoted
	(ii)		6 – 10.5 m		M1 evidence of use of man's height to estimate bus length A1 ft on 4 to 5 times "(i)" **OR** B2 for an answer in the range 6 – 10.5 m oe (20 ft to 32.5 ft) Correct units must be quoted but not necessarily consistent with (i)
7	(a)		6	1	B1 cao
	(b)		40	1	B1 cao

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Question		**Working**	**Answer**	**Mark**	**Notes**
8	(a)	3.45 + 1.8 = 5.25 10 – 5.25 Or 10 – 3.45 = 6.55 6.55 – 1.8	4.75	3	M1 3.45 + 1.8 (= 5.25) M1 10 – '5.25' A1 cao [SC: B2 for an answer of 5.47 (B1 for 4.53 seen) if M0 scored] **OR** M1 for 10 – 3.45 (= 6.55) M1 for "6.55" – 1.8 A1 cao [SC: B2 for an answer of 5.47 if M0 scored] **OR** M1 for 10 – 1.8 (or 8.2) M1 for "8.2"– 3.45 A1 cao [SC: B2 for an answer of 5.47 if M0 scored]
	(b)	2000 ÷ 300	6	2	M1 for 2 litres ÷ 300 mls (= 6.66… or $6\frac{2}{3}$)oe A1 cao [SC: B1 for 1 litre = 1000 m*l* (or 2000 m*l* seen) if M0 scored]
9	(a)		60°	1	B1 cao
	(b)	360 – 230 – 60 = 70 180 – 70 – 70	40°	3	M1 for 360 – 230 – '60' (= 70) M1 (indep) for 180 – '70' – '70' The '70' may be just shown in the diagram A1 cao

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Question		**Working**	**Answer**	**Mark**	**Notes**
10	(a)		A and E	1	B1 cao
	(b)		D and F	1	B1 cao
	(c)		B and C	1	B1 cao
11	(a)		Likely	1	B1 cao
	(b)		Evens	1	B1 cao
	(c)		Impossible	1	B1 cao
12		$20 \times 5 = 100$ $5 \times 19 = 95$ or $4.9 \times 20 = 98$ or $4.8 \times 20 = 96$	£95 or £98 or £96 or £100	2	M1 for 5×19 or $4.9(0) \times 20$ or $4.8(0) \times 20$ or 5×20 A1 for £95 or £98 or £96 or £100 Do not accept attempts at accurate working
13	(a)		Rectangle 10 by 2 or 5 by 4 Or 8 by 2.5	2	M1 for any rectangle A1 for a rectangle drawn of area 20 cm ^{2}
	(b)		A correct isosceles triangle [eg, base = 3cm, height = 8cm or base = 4cm, height = 6cm or base = 6cm, height = 4cm or base = 8cm, height = 3cm]	2	M1 for any isosceles triangle drawn or a triangle drawn with an area of 12 cm^2 A1 for correct sides (e.g. base 6, height 4; base 8, height 3) [Note: If fractional lengths used, this must be explicitly stated on an accurate diagram. Eg $12 = \frac{1}{2} \times 5 \times 4.8$, the 4.8 must be stated]

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Question		**Working**	**Answer**	**Mark**	**Notes**
14	(i)	$4 \times 5 + 2 \times \dfrac{1}{2} = 20 + 1$	21	3	M1 for $4 \times 5 + 2 \times \dfrac{1}{2} (= 20 + 1)$ these could be quoted separately A1 cao
	(ii)	$10 - 5^2 = 10 - 25$	−15		B1 cao
15	(a)	$\begin{array}{r} 5\,{}^5 6\,4 \\ -1\;2\;8 \\ \hline 4\;3\;6 \end{array}$ or $\begin{array}{r} 5\;6\,{}^1 4 \\ -1\;2\,{}^1 8 \\ \hline 4\;3\;6 \end{array}$	436	2	M1 for evidence of a correct, method of decomposition or equal addition or use of complement to 200 or 6 seen in the units column of their answer A1 cao
	(b)	$4 \times 7 = 28 \times 5$ or $4 \times 35\ (7 \times 5)$ or $4 \times 5 = 20 \times 7$	140	2	M1 for '4 × 7' × 5 or 4 × '7 × 5' or '4 × 5' × 7 A1 cao

Question		Working	Answer	Mark	Notes
16	(a)		× marked in the centre of the middle square	1	B1 cao Allow a cross drawn inside the square (not on a side of the square)
	(b)		Completed shape	1	B1 cao

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Question		Working	Answer	Mark	Notes
17	(a)		28	1	B1 cao
	(b)	40 + 28 + 22	90	2	M1 for adding 2 or 3 distances, with at least 2 correct distances A1 cao [SC: B1 for an answer of 130 if M0 scored]
	(c)	Distance = 25 + 45 + 30 = 100 Travel time = 100 ÷ 50 = 2 OR 25 ÷ 50 + 45 ÷ 50 + 30 ÷ 50 = 30 + 54 + 36 mins = 2	14:00	4	M1 for 25 + 45 + 30 (=100) or for adding 2 or 3 distances with at least 2 correct M1 for '100' ÷ 50 M1 (dep on at least one M1) for 9 + 3 + 'total time' A1 for 2 pm or 14 00 oe **OR** M1 for 25÷ 50 (=30 mins) or 45÷ 50 (= 54 mins) or 30÷ 50(= 36 mins) M1 for '25÷ 50' + '45÷ 50' + '30÷ 50' or for adding 2 or 3 times of which at least 2 are from using correct distances M1 (dep on at least one M1) for 9 + 3 + 'total time' A1 for 2 pm or 14 00 oe
18	(a)	Gemma = $x + 4$ Jo = $x - 2$ $x + 4 + x - 2 + x = 23$	$x + 4 + x - 2 + x = 23$	2	M1 for $x + 4$ and $x - 2$ seen (ignore £ signs) A1 for $x + 4 + x - 2 + x = 23$ oe (accept $x = 7$ but do **not** accept £ signs in final equation [SC: B1 for $x = £7$, if M0 scored] The equation can be accepted if seen only in part (b)
	(b)	$3x + 2 = 23$ $3x = 21$	7	2	M1 for isolating terms in x and number terms on each side of an equation, ft from $ax + b = 23$ ($a \neq 0$ or 1) in (a) A1 for 7 or ft a correct solution of their equation [SC: B1 for an answer of 5 or 11]

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Question		**Working**	**Answer**	**Mark**	**Notes**
19	(a)	$\dfrac{4}{20}$	$\dfrac{1}{5}$	2	M1 for $\dfrac{4}{20}$ oe A1 cao [SC: B1 for $\dfrac{16}{20}$ oe, if M0 scored]
	(b)	$\dfrac{6}{20}\times100$ Or $\dfrac{6}{20}=\dfrac{5\times6}{5\times20}$	30	2	M1 $\dfrac{6}{20}\times100$ oe A1 cao **OR** M1 $\dfrac{6}{20}=\dfrac{5\times6}{5\times20}$ A1 cao
	(c)	$10-1.50=8.50$ $8.50\div2=4.25$ OR $10\div2+1.50\div2$ $=5+0.75$	5.75	2	M1 $10-1.50=8.50$ and "8.50" $\div2$ (= 4.25) or $10+1.50=11.50$ and "11.50" $\div2$ or $10\div2$ and $1.5(0)\div2$ or $2x+1.5(0)=10$ oe A1 cao
20	(a)	$4^2+6^2=2\times5^2+2=52$	4^2+6^2 | $2\times5^2+2$	1	B1 cao
	(b)	$10^2+12^2=2\times11^2+2=244$	10^2+12^2 | $2\times11^2+2$ | 244	2	M1 for 2 of 10^2+12^2, $2\times11^2+2$, 244 A1 for a fully correct line 10
	(c)	$2\times1000^2+2$ $2\times1\,000\,000+2$	2 000 002 or 2 million and 2	2	M1 $2\times1000^2+2$ A1 for 2000 002 or 2 million and 2

1380_1F					
Question		**Working**	**Answer**	**Mark**	**Notes**
21	(a)	5.2 – 1.3	3.9	2	M1 for sight of 5.2 and 1.3 or 52 – 13 (= 39) A1 cao
	(b)		3.1	2	M1 for sight of the 11th value or 31 A1 cao
	(c)		$\dfrac{3}{21}$	2	M1 for $\dfrac{3}{q}$ ($q > 3$) or $\dfrac{n}{21}$ ($0 < n < 21$) or for sight of 3 and 21 A1 $\dfrac{3}{21}$ oe ignore any subsequent cancelling errors
22	(a)	$2(x - y) - 3(x - 2y)$ $= 2x - 2y - 3x + 6y$	$-x + 4y$	2	M1 $2x - 2y - 3x \pm 6y$ or $2x - 2y$ or $3x - 6y$ or $-3x + 6y$ A1 cao [SC B1 for $-x - 8y$ or $x + 4y$ if MO scored]
	(b)	$3y + 12 = y + 8$ $3y - y = 8 - 12$ $2y = -4$	-2	2	M1 for a correct attempt to collect either the numbers or the terms in y on one side of the equation A1 cao
	(c)		$2(2 + 3x)$	1	B1 for $2(2 + 3x)$ or $(2 + 3x)2$ or $2\times(2 + 3x)$ or $(2 + 3x)\times2$

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Question	Working	Answer	Mark	Notes
23	Ext angle = $\dfrac{360}{6}$ Int angle = 180 – 60 120 + 90 = 210 360 – 210 = 150 OR 180 × 4 = 720 720 ÷ 6 =120 120 + 90 = 210 360 – 210 = 150 OR Ext angle = $\dfrac{360}{6}$ Ext angle = 90 90 + 60	150	4	M1 (Ext angle =) $\dfrac{360}{6}$ M1 (Int angle =) 180 – '60' M1 (dep on at least M1) for 360 – ('120' + 90) A1 cao [SC: B2 for an answer of 210] OR M1 for 180 × 4 (= 720) M1 for '720' ÷ 6 (=120) M1 (dep on at least M1) for 360 – ('120' + 90) A1 cao OR M1 (Ext angle =) $\dfrac{360}{6}$ (= 60) M1 (Ext angle =) $\frac{360}{4}$ or 180 – 90 (= 90) or 90 seen as an exterior angle on the diagram M1 (dep on at least M1) for 90 + '60' A1 cao

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Question		**Working**	**Answer**	**Mark**	**Notes**
24	(a)		New points plotted at (15, 22) and (55, 15)	1	B1for points plotted with ± ½ square tolerence
	(b)		If the temperature increases so the time taken decreases	1	B1 If the temperature increases so the time taken decreases (accept negative correlation)
	(c)		18 − 20	2	M1 draw LOBF between (20,18) and (20, 22) to (70,3) and (70,8) A1 18 – 20 [B2 for an answer in the range 18 – 20 if M0 scored]
	(d)		Reason [For example, LOBF would give negative time or you should not use the LOBF beyond the given data.]	1	B1 reason e.g LOBF would give negative time, you should not use the LOBF beyond your data
25	(a)		Vertices at (–4, 2), (–4, 0), (0, 0) and (–2, 2)	2	M1 any translation A1 cao
	(b)		Vertices at (4, 4), (2, 4) and (2, 8)	2	M1 sight of the line $y = x$ or a correct reflection is in $y =- x$ A1 cao