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Mark Scheme (Results)

November 2011

GCSE Mathematics (5384F)
Paper 11F (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
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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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 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).

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Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)	960 – 23 + 16	953	2	M1 for attempt to subtract 23 and add 16 **or** 960 – 23 + 16 oe A1 cao
	(b)		25	1	B1 cao
2	(i)		– 5	2	B1 cao
	(ii)		15		B1 cao
3	(a)		18 16	1	B1 accept 18 16 or 6 16 pm
	(b)	19 55 19 08 18 59 – 18 18 – 56 50 **or** 18 59 to 19 00 is 1 minutes 19 00 to 19 55 is 55 minutes 1 + 55 = 56 18 18 to 18 30 is 12 minutes 18 30 to 19 00 is 30 minutes 19 00 to 19 08 is 8 minutes 12 +30 + 8 = 50 **or** 18 59 1955 – 18 18 – 19 08 41 47 47 – 41 =	6	2	M1 for (19 55 – 18 59) and (19 08 – 18 18) seen or 56 or 50 A1 cao **or** M1 for attempt to add on from 18 59 to 19 55 and 18 18 to 19 08 or 56 or 50 A1 cao **or** M1 for (18 59 – 18 18) and (19 55 – 19 08) or 41 or 47 A1 cao

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Question		**Working**	**Answer**	**Mark**	**Notes**
4	(a)		A and E	1	B1 cao
	(b)		D and F	1	B1 cao
	(c)		B and C	1	B1 cao
5	(a)	$\begin{array}{r} {\scriptstyle 5}\not{5}\not{6}\,{}^{1}4 \\ -\,1\,2\,\,8 \\ \hline 4\,3\,6 \end{array}$ $\begin{array}{r} 5\,6^{1}4 \\ 1\not{2}^{3}\,8\,- \\ \hline 4\,3\,6 \end{array}$	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 4×35 (7×5) or $4 \times 5 = 20 \times 7$	140	2	M1 '4×7' $\times 5$ or $4 \times$ '7×5' or '4×5' $\times 7$ A1 cao
6	(a)		6	1	B1 cao
	(b)		40	1	B1 cao
7		$21 \times 3 = 63$ $63 + 7 = 70$	70	2	M1 for 21×3 or 63 seen or $(x - 7) \div 3$ or "21×3" + 7 seen but not $21 + 7$ A1 cao
8			Two angles equal as $B = 50°$	2	B2 for angle $B = 50$ **and** 'two angles equal' or angle A = angle B (B1 for use of 180, e.g. $180 - 50 - 80$ or $B = 50$) **NB** accept 50º if just seen on the diagram in the correct place

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Question		**Working**	**Answer**	**Mark**	**Notes**
9		3.45 + 1.8 = 5.25 10 – 5.25 = 4.75 **or** 10 – 3.45 = 6.55 "6.55" – 1.8 = **or** 10 – 1.8 = 7.2 "7.2" – 3.45 =	4.75	3	M1 3.45 + 1.8 (= 5.25) M1 10 – '5.25' A1 cao **or** M1 for 10 – 3.45 (= 6.55) M1 for "6.55" – 1.8 A1 cao **or** M1 for 10 – 1.8 (= 7.2) M1 for "7.2" – 3.45 A1 cao SC: B2 for an answer of 5.47 **or:** B1 for 4.53 seen in working if M0 scored
10	(a)		h^4	1	B1 cao
	(b)(i)	4 × 5 + 2 × ½	21	3	M1 for substituting 5 and ½ correctly or sight of 4 × 5 and 2 × ½ A1 cao
	(ii)		– 15		B1 cao

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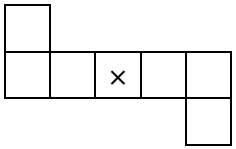
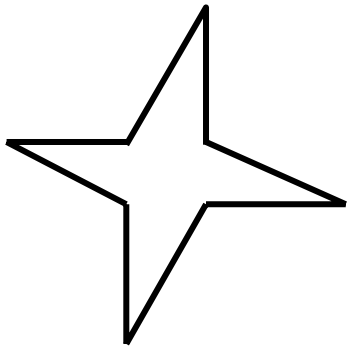
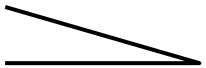
Question		**Working**	**Answer**	**Mark**	**Notes**
11	(a)			1	B1 for cross placed inside the correct square but not on the side of the square
	(b)			1	B1 for completing shape correctly by adding appropriate lines. See diagram at end 
12	(a)		2 15 pm	1	B1 2 15 pm or 14 15 accept 2 15 or 2:15
	(b)		60	1	B1 cao
	(c)		5	1	B1 cao

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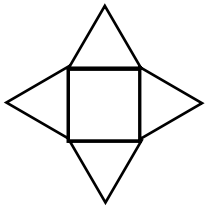
Question		**Working**	**Answer**	**Mark**	**Notes**
13	(a)		Correct net	1	B1 for any net that contains a reasonable attempt at a square and 4 triangles that could fold to make a square based pyramid. Condone freehand sketches as long as the meaning is clear
	(b)		Correct drawing	2	M1 constructing intersecting arcs of equal radius use overlay A1 correct triangle with appropriate arcs (SC: B1 correct triangle drawn within guidelines of overlay if M0 scored) (NB: guidelines allow for 2mm tolerance)

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Question		**Working**	**Answer**	**Mark**	**Notes**
14	(a)	$\frac{4}{20}$	$\frac{1}{5}$	2	M1 $\frac{4}{20}$ oe A1 cao SC B1 for $\frac{16}{20}$ oe
	(b)	$\frac{6}{20} \times 100$ or $\frac{6}{20} = \frac{5 \times 6}{5 \times 20}$	30	2	M1 $\frac{6}{20} \times 100$ oe A1 cao or M1 $\frac{6}{20} = \frac{5 \times 6}{5 \times 20}$ A1 cao
	(c)	10 – 1.50 = 8.50 8.50 ÷ 2 = 4.25	5.75	2	M1 10 – 1.5(0) = 8.5(0) and "8.5(0)" ÷ 2 or (10 +1.5(0) ="11.5(0)" ÷ 2 or $2x \pm 1.5(0) = 10$ oe or 4.25 seen A1 cao
15	(a)	Gemma $x + 4$ Jo $x - 2$ $x + 4 + x - 2 + x = 23$	$3x + 2 = 23$	2	M1 for $x + 4$ and $x - 2$ seen (ignore £ signs) A1 $x + 4 + x - 2 + x = 23$ oe accept $x = 7$ even if seen only in (b)
	(b)	$3x + 2 = 23$ $3x = 21$	7	2	M1 for isolating terms in x and number terms on each side of an equation,'$3x = 21$' ft from $ax + b = 23$ in (a) where $a \neq 0$ or 1 A1 ft from their answer to (a)
16		4.8 ÷ 24	20	2	M1 for 4.8 ÷ 24 or 480 ÷ 24 or sight of digits 20 A1 cao

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Question		**Working**	**Answer**	**Mark**	**Notes**
17		$\frac{2}{3}+\frac{1}{7}=\frac{14}{21}+\frac{3}{21}$ | | 2 | 3 | | 1 | | 3 | | 7 | 14 | 21 |	$\frac{17}{21}$	2	M1 for a suitable common denominator (multiple of 21), and at least one of two fractions correct NB sight of $\frac{3}{21}$ oe or $\frac{\quad}{21}$ oe alone is **not** sufficient A1 $\frac{17}{21}$ oe OR Attempt to use decimals, must use at least 2 dp M1 0.66 + 0.14 A1 0.80952 **or** M1 for table structure correct with all cells correct A1 for $\frac{17}{21}$
18		$3y + 12 = y + 8$ $3y - y = 8 - 12$	-2	2	M1 for an intention to attempt to take variables to one side **or** numbers to the other or $3y - y = 8 - 12$ or $2y = -4$ seen A1 cao

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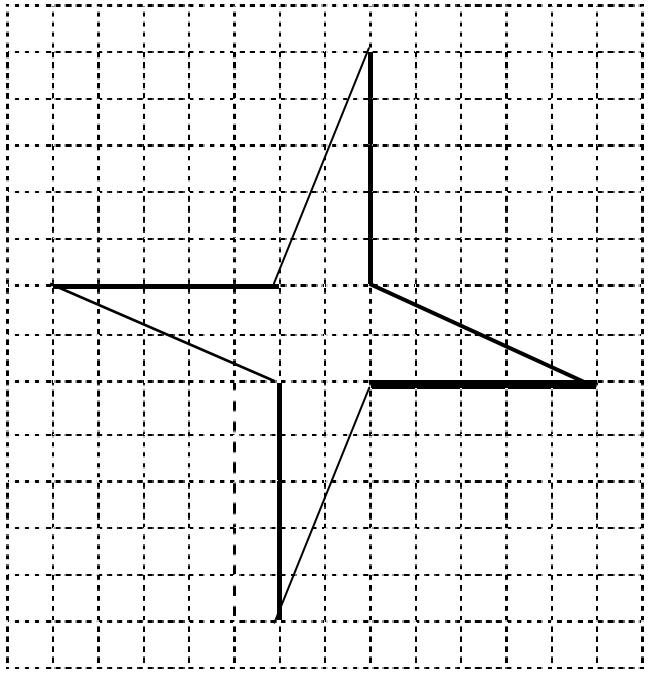
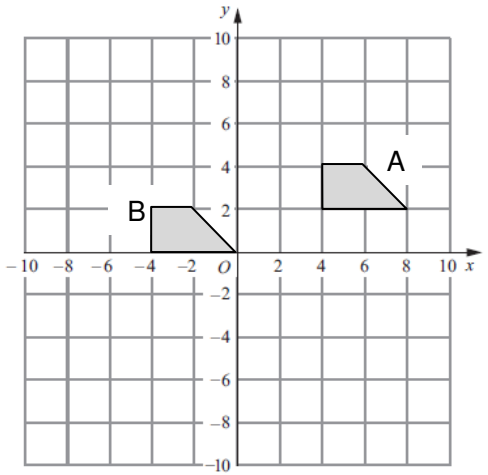
Question		**Working**	**Answer**	**Mark**	**Notes**
19		Ext angle = $\frac{360}{6}$ Int angle = 180 – 60 120 + 90 = 210 360 – 210 = 150 **or** 180 × 4 = 720 720 ÷ 6 =120 120 + 90 = 210 360 – 210 = 150 or Ext angle hexagon = $\frac{360}{6}$ Ext angle square = $\frac{360}{4}$ or 180 – 90 90 + 60	150	4	M1 for (Ext angle) = $\frac{360}{6}$ (= 60) seen M1for (Int angle) = 180 – '60' M1 (dep on at least M1) 360 – ('120' + '90') A1 cao **SC** B2 for answer of 210 given **Or** M1 for 180 × 4 (= 720) M1 for '720' ÷ 6 (=120) M1 (dep on at least M1) 360 – ('120' + 90 A1 cao **Or** M1 (Ext angle hexagon) = $\frac{360}{6}$ M1 (Ext angle square) = $\frac{360}{4}$ or (180 – 90) or 90º seen as exterior angle on diagram M1 (dep on at least M1) '90' + "60" A1 cao
20	(a)	Vertices at (–4, 2), (–4, 0), (0, 0) and (–2, 2)	Correct translation	2	M1 any translation A1 cao
	(b)	Vertices at (4, 4), (2, 4) and (2, 8)	Correct reflection	2	M1 sight of line $y = x$ drawn or a correct reflection in $y = -x$ A1 cao

Diagram for Question 11(b)

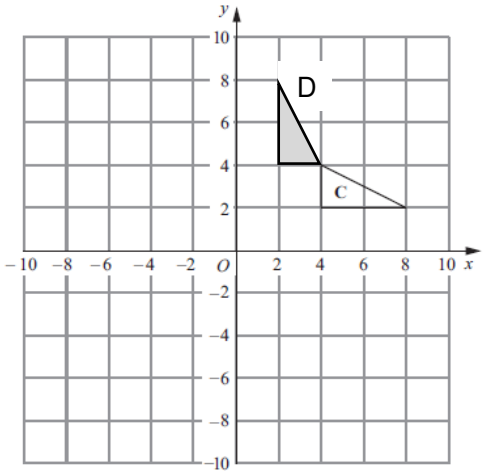


Diagrams for Question 20

(a)



(b)



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