Mark Scheme (Results)

November 2010

GCSE Mathematics (5384F)
Paper 11F

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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	dep – dependent	oe – or equivalent (and appropriate)
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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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.
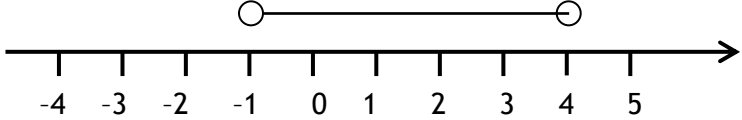
5 **Follow through marks**
Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, but if ambiguous do not award.
Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant 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 **Range of answers**
Unless otherwise stated, when an 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	4 × 1.50 9 ÷ 2 7.98 + '6.00' + 9	6.00 4.50 22.98	1 1 1	B1 cao B1 cao B1 ft from their '6'
2 (i) (ii) (iii)		6 12 8	3	B1 cao B1 cao B1 cao
3 (a)(i) (ii) (b)		9 12 2	2 2	B1 cao B1 cao M1 for 3 × 2 + 4 × −1 oe A1 cao
4 (a) (b)		2 lines marked 3	2 1	B2 for correct 2 lines, no extras (B1 for 1 correct line, no extras OR 2 correct lines with both 'diagonals' OR 2 correct lines with 1 extra line B1 cao
5 (a) (b)		80 7.50	1 1	B1 answer in range 78 – 82 B1 answer in range 7.3(0) – 7.7(0)

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Question	Working	Answer	Mark	Notes
6 (i)		Cone	2	B1 (accept incorrect spelling if intention is clear)
(ii)		Cylinder		B1 (accept incorrect spelling if intention is clear)
7	$3 \div 5$	0.6	2	M1 for $3 \div 5$ or $5\overline{)3.0}$ or $\frac{3}{5} \times 2$ or $\frac{3 \times 2}{5 \times 2}$ or $\frac{6}{10}$ seen A1 for 0.6
8 (a)(i)		4	2	B1 cao
(ii)		−2		B1 cao
(b)(i)		−2	2	B1 cao
(ii)		12		B1 cao
9		70	3	M1 for $a + a + a - 30$ or $3a - 30$ seen M1 ft for $3a = 210$ or $3a =$ '180' + 30 or $a + a + a = 210$ or $a + a + a =$ '180' + 30 A1 for 70 Note if T & I used then award 3 marks for answer of 70
10 (a)		5	1	B1 cao
(b)		3	1	B1 cao

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Question	Working	Answer	Mark	Notes
11 (a) (b)		Midpoint marked Circle with 5 cm radius drawn	3	B1 for midpoint, tolerance 2mm (overlay) B2 for fully correct circle of radius 5 cm centre P or follow through 'P', tolerance of radius 2mm (B1 for a circle with centre 'P' or for a circle of radius 5 cm, tolerance of radius 2mm)
12	150 ÷ 5 = 30 30 × 2 = 60 150 – 60	90	3	M2 for 150 - 2 × 150 ÷ 5 oe or sight of 60 (M1 for $\frac{1}{5} \times 150$ or 150 ÷ 5 or sight of 30) A1 for 90 cao **Alternative 1** M2 for $\frac{3}{5} \times 150$ or 3 × 150 ÷ 5 or 0.6 × 150 (M1 for $\frac{1}{5} \times 150$ or 150 ÷ 5 or sight of 30) A1 for 90 cao **Alternative 2** M2 for $1 - \frac{2 \times 30}{5 \times 30}$ or $1 - \frac{60}{150}$ or $\frac{90}{150}$ (M1 for $\frac{2 \times 30}{5 \times 30}$ or $\frac{60}{150}$) A1 cao

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Question	Working	Answer	Mark	Notes
13	$\dfrac{4}{100} \times 500 = 20$	40	2	M1 for $\dfrac{4}{100} \times 500$ oe or $\dfrac{8}{100} \times 500$ oe or sight of 20 or 520 A1 cao SC B1 for 540
14	451 23 × 1353 9020 10373 | 400	50	1	×
8000	1000	20	20
1200	150	3	3 | [lattice multiplication grid for 4 5 1 × and rows 2, 3 giving 10 3 7 3] 8000 + 1200 + 1000 + 150 + 20 + 3	10 373	3	M1 for complete method with relative place value correct. Condone 1 multiplication error, addition not necessary. M1 (dep) for addition of all appropriate elements of the calculation A1 cao OR M1 for a complete grid. Condone 1 multiplication error, addition not necessary. M1 (dep) for addition of all appropriate elements of the calculation A1 cao OR M1 for sight of a complete portioning method, condone one multiplication error M1 (dep) for addition of all the appropriate elements of the calculation A1 cao SC B1 for attempting to add exactly 23 lots of 451

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Question	Working	Answer	Mark	Notes
15	$540 - 240 = 300$ $\dfrac{15}{100} \times 300$	45	3	M1 for 540 – 240 or 300 seen M1 (dep) for $\dfrac{15}{100} \times$ '300' or correct method for 10% + 5% of '300' A1 cao SC If no marks scored award B1 for an answer of 81 or 36
16 (a)			1	B1 for fully correct answer
(b)		$-2 < x \le 3$	2	B2 for fully correct answer (B1 for -2 < or ≤ 3 seen)
(c)	$3t + 5 > 17$ $3t > 17 - 5$ $3t > 12$	$t > 4$	2	M1 for $3t$ … 17 – 5 or dividing throughout by 3 or sight of 4 or an attempt to move the 5 A1 for $t > 4$ oe
17		B and E	2	B2 for both correct (B1 for 1 correct)
18		1 : 3	2	M1 for writing ratio as 18 : 6 or 6 : 18 or 3 : 1 or 3 : 9 or 9 : 3 or 6 : 2 or 2 : 6 A1 cao

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Question	Working	Answer	Mark	Notes
19	$2\dfrac{16}{20} - \dfrac{5}{20}$	$2\dfrac{11}{20}$	3	M1 for dealing with whole numbers 3 – 1 = 2 M1 for correct common denominator and at least one correct numerator (can be $\dfrac{16}{20}$ or $\dfrac{5}{20}$ if 20 used as common denominator) A1 for $2\dfrac{11}{20}$ oe Alternative M1 for $\dfrac{5\times3+4}{5} - \dfrac{4\times1+1}{4}$ with at least one correct numerator M1 for correct common denominator and at least one correct numerator (can be $\dfrac{76}{20}$ or $\dfrac{25}{20}$ if 20 used as common denominator) A1 for $\dfrac{51}{20}$ or $2\dfrac{11}{20}$ oe
20		Correct construction	2	M1 for two pairs of correct intersecting arcs A1 for correct perpendicular bisector SC if no marks, B1 for line within guidelines.
21 (a)			3	B1 for rotation B1 for about (0,0) B1 for 180°(accept half turn) NB If more than one transformation seen than B0
(b)		triangle with vertices (6, 1) (6, 4) (5, 4)	1	B1 cao

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