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Mark Scheme (Results)

Summer 2010

GCSE

GCSE Mathematics (1380)
Calculator Paper 2F

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

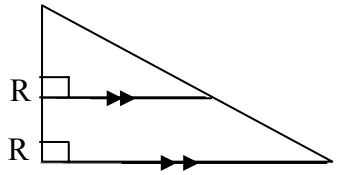
9 Parts of questions

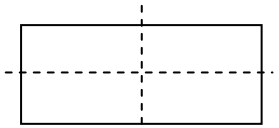
Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded in another.

10 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)

1380/2F					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)	4×3	12	1	B1 cao
	(b)	4×2.5	10	1	B1 cao
	(c)		Two circles	1	B1 cao
	(d)		One and a half circles	1	B1 cao
2	(a)		2.80	1	B1 accept 2.80p
	(b)		2.06	1	B1 accept 2.06p
3	(a)(i)		cuboid	3	B1 (accept rectangular prism)
	(ii)		sphere		B1 (ignore spelling)
	(iii)		pyramid		B1 accept tetrahedron, (triangular based) pyramid
	(b)	5×2	10	1	B1 cao

Question		Working	Answer	Mark	Notes
4	(i)		53	2	B1 for 53 cao
	(ii)		10		B1 for 10 cao
5	(a)		Certain	1	B1 accept likely
	(b)		Even chance	1	B1 accept evens
	(c)		Impossible	1	B1 cao
6	(a)		Circle drawn with radius 5 cm	1	B1 for circle with radius 5 cm ± 2 mm
	(b)(i)		Arrows on horizontal lines	2	B1 for any clear indication of the pair of parallel lines
	(ii)				B1 for any right-angle labelled with an R (inside or outside the angle) Accept a right-angle box sign used instead of R.

Question		Working	Answer	Mark	Notes
7	(i)		Metres, cm or mm	3	B1 for m, cm or mm
	(ii)		Stones or pounds		B1 for stones or pounds
	(iii)		litres		B1 for litres (accept m*l* or cc or c*l* or cm^3)
8	(a)		25	1	B1 cao
	(b)		1.8	1	B1 accept -1.8 or ± 1.8 or $\frac{9}{5}$ or $1\frac{4}{5}$
9	(a)	16 + 3	19	1	B1 cao
	(b)		Add 3 oe	1	B1 for 'add 3' , 'increase by 3'or goes up in 3's.
10	(a)			2	B2 for fully correct answer accept freehand lines within tolerance of overlay (B1 for each correct line of symmetry drawn [−1 for each extra line drawn]) [SC: B1 for both diagonals drawn in addition to the correct lines of symmetry]
	(b)		5	1	B1 cao
	(c)		3	1	B1 cao

Question	Working	Answer	Mark	Notes
11 (a) (i)		18	2	B1 cao
(ii)		−6		B1 cao
(b)		−3	1	B1 for −3 (accept 6 am)
(c)		5	1	B1 for 5, -5 or +5
12 (a)		$\frac{5}{12}$	1	B1 cao
(b)		$\frac{5}{20}$ and $\frac{3}{10}$	2	B1 for $\frac{5}{20}$ oe and B1 for $\frac{3}{10}$ oe
(c)	64 ÷ 4 × 3	48	2	M1 for 64 ÷ 4 × 3 oe A1 cao

Question	Working	Answer	Mark	Notes
13 (a)	$2000 \div 85 = 23.529...$	23	2	M1 for $2000 \div 85$ or $20 \div 0.85$ or sight of digits 235 A1 for 23 **Alternative** M1 for build up method with an attempt to find the cost of at least 21 tulips A1 for 23 SC B1 for 24 with or without working
(b)	$2000 - 85 \times 23$	45	2	M1 for $20 -$ "23" $\times$ 0.85 or 2000 - "23" $\times$ 85 or difference between £20 and "23" $\times$ 85p (consistent units need to be used) A1 for 45p or £0.45, ft from "23" providing the $20 \leqslant$ "23" < 24
14 (a)		6 **15** **4** **25** **5** 6 **14** 25 11 **21** 18 50	3	B3 for a fully correct table (B2 for 4 or 5 correct entries) (B1 for 2 or 3 correct entries)
(b)		$\frac{3}{25}$ oe	2	B2 for $\frac{3}{25}$ oe (B1 for $\frac{6}{Y}(y < 50)$ or $\frac{x}{50}(x \leq 25)$ or 3:25 or 6:50 or 3 out of 25 or 6 out of 50)

Question	Working	Answer	Mark	Notes
15 (a)		10.8 to 11.0	1	B1 for answer in the range 10.8 to 11.(0) inclusive
(b)		27 to 28	1	B1 for answer in the range 27 to 28 inclusive
(c)	1.15×50	57.50	2	M1 for 1.15×50 A1 for 57.50 (accept 57.5)
(d)	$57.5 \div 11$	5.23	2	M1 for "57.5" ÷ "11" or for correctly using any other conversion factor from the graph or for sight of a conversion factor of between 4.4 and 4.7 A1 for an answer in the range 5 to 5.75
16 (a)	3×5	15	1	B1 cao
(b)	$2y = 9 + 4 = 13$	6.5	2	M1 for attempt to add 4 to both sides or $2y = 9 + 4$ or attempt to divide both sides by 2 or $y - 2 = 4.5$ A1 cao
17	$180 + 40$ or $360 - (180 - 40)$	220	2	M1 for $180 + 40$ or $360 - "(180 - 40)"$ A1 cao

Question	Working	Answer	Mark	Notes
18 (a)		E	1	B1 for E (accept 07 45 or 09 59)
(b)	09 04 − 07 30 or $(30+60+4)$	94	2	M1 for a clear method of finding the duration of the journey between 09 04 and 07 30 (eg $30+60+4$) or sight of 174 or 1.74 or 1:74 or 1 hr 74 or 134 or 1.34 or 1:34 or 1 hr 34 A1 cao
(c)		C	1	B1 for C (accept 07 15 or 08 48)
19 (a)	$\frac{2}{3.95}$	0.5063(29113…)	2	B2 for 0.5063 or better [B1 for 0.5 or 0.50 or 0.506 or 0.51 or 3.95 or the fraction $\frac{40}{79}$ seen]
(b)		0.51	1	B1 ft for 0.51 from their answer to part(a) which is written to two or more decimal places

Question	Working	Answer	Mark	Notes
20 (a)		Info plotted at (6.1, 32)	1	B1 for a correct plot ± 2 mm
(b)		positive	1	B1 for positive (correlation)
(c)		6.6 to 7.6	2	M1 for a single straight line segment with positive gradient that could be used as a line of best fit or an indication on the diagram from 40 on the umbrella axis A1 for an answer in the range 6.6 to 7.6 inclusive
21 (a)	1.25×620	775	2	M1 for 1.25×620 oe A1 cao
(b)	$50 \div 1.25 = 40$ $42 - 40$	2	3	M1 for $50 \div 1.25 = (40)$ oe M1 dep for $42 -$ "40" or "40" $- 42$ A1 cao **Alternative** M1 for 42×1.25 (= 52.50) oe M1 dep for "52.50" – 50 A1 cao A0 for €2.5(0) or £2.5(0) without any working **SC** B2 for –£2 without working

Question	Working	Answer	Mark	Notes
22 (a)		−2, 4, 7	2	B2 for a fully correct table (B1 for 1 or 2 correct entries)
(b)		Straight line from (−2, −2) to (2, 10)	2	B2 for a correct straight line from (−2, −2) to (2, 10) (B1 ft for at least 4 correctly plotted points OR a single straight line passing through (0, 4) OR for a single line of gradient 3)
23 (a) (i)	$360 - 130 - 90$	140	3	M1 for $360 - 130 - 90$ oe A1 cao
(ii)		Angles at a point = 360^o oe		B1 for 'angles at a point = 360' or 'angles in a complete turn = 360' oe
(b) (i)		112	3	B1 cao
(ii)				B1 for 'alternate angles' or Z angles or 'corresponding angles' or F angles or B1 for '(angles on a straight) line = 180' **Alternative** B1 for allied angles or co-interior angles B1 for (vertically) opposite angles

Question	Working	Answer	Mark	Notes
24	$x = 1$ gives 11 $x = 2$ gives 28 $x = 1.5$, gives 18.(3..) $x = 1.6$, gives 20.(0..) $x = 1.7$, gives 21.(9..) $x = 1.8$, gives 23.(8..) $x = 1.9$, gives 25.(8..) $x = 1.85$, gives 24.8(3..) $x = 1.86$, gives 25.(03..) $x = 1.87$, gives 25.2(3..) $x = 1.88$, gives 25.4(4..) $x = 1.89$, gives 25.6(5..)	1.9	4	B2 for a trial between $1.8 \leq x \leq 1.9$ inclusive evaluated (B1 for a trial $1 \leq x \leq 2$ evaluated) B1 for a different trial $1.85 \leq x < 1.9$ evaluated B1 (dep on at least one previous B1) for 1.9 Accept trials correct to the nearest whole number (rounded or truncated) if the value of x is to 1dp but to 1 dp (rounded or truncated) if the value of x is to 2dp NB: no working scores, no marks even if answer is correct.
25 (a)	$1-(0.15+0.30+0.35)$	0.20	2	M1 for $1-(0.15+0.30+0.35)$ A1 for 0.2 oe
(b)	0.30×500	150	2	M1 for 0.30×500 A1 cao Note:- $\frac{150}{500}$ gets M1 A0 and 150 out of 500 gets M1 A1

Question	Working	Answer	Mark	Notes
26 (a)		Base angles of an isosceles triangle are equal	1	B1 mentions **isosceles** triangle or **two sides the same** or **base angles equal** accept equivalent reasons do not accept incorrect statements
(b)	$2x = 40$	20	2	M1 for an attempt to move x to LHS or -10 to RHS e.g.: $-x$ each side or +10 each side or to move $3x$ or +30 or sight of $2x$ or 40 or $-2x$ or -40 A1 cao
27 (a)	$0.5\times6\times14$	42	2	M1 for $0.5\times6\times14$ oe A1 cao
(b)	$\sqrt{6^2+14^2} = \sqrt{232}$	15.23	3	M1 for 6^2+14^2 or 36+196 or 232 M1 for $\sqrt{36+196}$ or $\sqrt{232}$ A1 for answer in range 15.2 to 15.3

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