

Edexcel GCSE

Mathematics B 1388

Paper 5536/17

June 2007

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Mark Scheme

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 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.

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

If there is no answer on the answer line then check the working for an obvious answer.

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: eg. incorrect cancelling 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 eg 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.

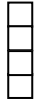

8 Linear equations

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.

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No	Working	Answer	Mark	Notes	
1	(a)	$900 \times 1.70 =$	1530	2	M1 $900 \times 1.7(0)$ or digits 153(0) seen A1 cao
	(b)	$160 \div 1.70 =$	£94.12 or £94.11	2	M1 $160 \div 1.7(0)$ or digits 941(...) seen A1 cao
2	(a)	$4.7 \div 5.9 = 0.796610169$	0.7966..	2	B2 for 0.7966 or better (B1 for 0.8, 0.80, 0.79, 0.796, 0.797 or digits 59 seen)
	(b)	0.82, 0.8, 0.85, 0.66, 0.875 0.66, 0.8, 0.82, 0.85, 0.875 2/3, 4/5, 0.82, 85%, 7/8	2/3, 4/5, 0.82, 85%, 7/8	2	B2 correct order (oe decimals in order) (B1 correct order reversed, or one error in ordered listing) with or without decimal equivalents.
3		55 61 74 190 33 17 10 60 88 78 84 250	55 61 74 190 33 17 10 60 88 78 84 250	3	B3 all 6 correct (B2 for 4 or 5 entries correct) (B1 for 2 or 3 entries correct)
4	(a)	-3 (-1) (1) 3 5 7	-3, 3, 5, 7	2	B2 all correct (B1 2,3 correct)
	(b)	(-2,-3),(-1,-1),(0,1),(1,3),(2,5),(3,7)	line	2	B2 cao for line from $x = -2$ to $x = 3$ (B1 ft plotting at least 5 'points' correctly or single line passing through (0, 1) or single line of gradient 2) The six possible points are: (-2,-3), (-1,-1), (0,1), (1,3), (2,5), (3,7)
	(c)(i)		-2	2	B1 $y = -2$ or ft from line segment
	(ii)		2.5		B1 $x = 2.5$ or ft from line segment

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No	Working	Answer	Mark	Notes
5	(a) $260 - 50 = 210$ $210 \div 35 =$	6	3	M1 for $260-50$ or 210 seen. M1 for “ $260-50$ ” $\div 35$ or $210 \div 35$ A1 cao
	(b)	$P=35h + 50$	3	B3 for $P=35h+50$ or $P=35 \times h+50$ oe (B2 for correct RHS or $P=h + 50 \times 35$ or $P=35h+k$ where k is numerical oe) (B1 for $P =$ some other linear expression in h , OR $h + 50 \times 35$ OR $35h$ seen) NB: $P=h$ scores no marks; ignore £ signs. SC B2 for $h = \frac{P-50}{35}$
6	(a) 	Elevation	2	B2 for 4 vertical squares. Accept 4 by 1 rectangle. (B1 for 4 vertical squares with one square added or parallelogram added to the top, or 3 vertical squares, or 4 horizontal squares)
	(b) 	Plan	2	B2 for 2 adjacent squares, vertical or horizontal. Accept 2 by 1 rectangle. (B1 for 3 adjacent horizontal or vertical squares or a rectangle with sides in the ratio 2:1)
7		300 3 75 150	3	B3 for 4 correct (B2 for 2 or 3 correct) (B1 for 1 correct)

Paper 5536_17				
No	Working	Answer	Mark	Notes
8	(a) $6x - 7 + 7 = 38 + 7$ $6x = 45$	7.5	2	M1 $6x = 45$ or $+7$ both sides A1 7.5 oe; accept 45/6
	(b) $5y - 2 = 10$ or $20y - 8 = 40$ $5y = 12$ $20y = 48$	$2\frac{2}{5}$	3	M1 $20y - 8 (= 40)$ or $\frac{4(5y - 2)}{4} = \frac{40}{4}$ or $5y - 2 = 10$ M1 (indep) for correct rearrangement into the form $ay = b + c$ or better (eg $20y = 40 + 8$ or $5y = 10 + 2$, using own terms) A1 for $2\frac{2}{5}$, 2.4 oe
9	$45^2 + 34^2 =$ $2025 + 1156 = 3181$ $\sqrt{3181} = 56.4$	56	4	M1 for $45^2 + 34^2$ M1 (dep) for $\sqrt{(2025 + 1156)}$ A1 for 56.4 ... B1 for rounding their diagonal to the nearest integer (dep on evidence from decimal) NB 56 as the final answer gets full marks. NB Scale drawings result in 0 marks.
10	$2000 \times (1.055)^3$ Interest = $2348.48 - 2000 =$	348.48	3	M1 for $5.5/100 \times 2000$ (oe) or 330 or 2330 or 110 or 2110 M1 (dep) for $5.5/100 \times (2000 + "110" + "116.05")$ or 122.4... seen A1 cao (accept only 348.48 or 348.49) OR M2 for $2000 \times (1.055)^3$ or 2348.48(...) or 2348.49 seen (M1 for $2000 \times (1.055)^n$, $n \neq 3$) A1 for 348.48 or 348.49 [SC: B2 for 2348.48 - 2348.49]
11		Line	2	B2 line fully within tramlines, crossing AB and CD (B1 a straight line which crosses AB within the tramline, and also crosses CD) NB: Accept dotted or dashed lines, but not curves; accept freehand if considered to be straight. [SC: B1 for a perpendicular bisector of AB that is halfway from AB to CD within the tramlines]

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No	Working	Answer	Mark	Notes
12	$(62 + 187 + 23 + 44) \div 4 = 316 \div 4$ $(187 + 23 + 44 + 82) \div 4 = 336 \div 4$	79, 84	2	M1 for $(62 + 187 + 23 + 44) \div 4$ or $316 \div 4$ OR $(187 + 23 + 44 + 82) \div 4$ or $336 \div 4$ A1 for both answers [SC: B1 for one correct answer if M0 scored]
13	$\pi \times 4^2 \times 9$	452 cm^3 452 cm^3 to 453 cm^3	3	M1 for $\pi \times 4^2 \times 9$ oe A1 for an answer in the range 452 – 453 inclusive B1 (indep) for cm^3
14	(a)	20	2	M1 $\frac{10}{4}$ or $\frac{4}{10}$ or 0.4 or 2.5 oe seen A1 cao NB ratios get M0 unless of the form 1:n OR M1 $\frac{8}{4}, \frac{4}{8}$ oe seen A1 cao
	(b)	6	2	M1 $15 \times \frac{4}{10}$ oe A1 cao
15	$x^2 - 4x + 3x - 12 = x^2 - x - 12$	$x^2 - x - 12$	2	M1 for exactly 4 terms correct ignoring signs (eg $x^2, 4x, 3x, 12$) or 3 correct terms out of 4 terms with correct signs (i.e. 3 out of 4 of $x^2, -4x, +3x, -12$) A1 cao

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No	Working	Answer	Mark	Notes
16 (a)	$9.9 \times 10^8 - 6.0 \times 10^7$	9.3×10^8	2	M1 for $99 \times 10^7 - 6 \times 10^7$ or $9.9 \times 10^8 - 0.6 \times 10^8$ or conversion of either to an ordinary number, or 930000000 or 93×10^7 or 9.3×10^n where n is any positive integer A1 cao
16 (b)	$\frac{6.0 - 4.5}{4.5} \times 100 = \frac{1.5}{4.5} \times 100 =$ or $\frac{6.0 \times 10^7 - 4.5 \times 10^7}{4.5 \times 10^7} \times 100$	33.3%	3	M2 $\frac{6.0 \times 10^7 - 4.5 \times 10^7}{4.5 \times 10^7} \times 100$ oe (M1 for $\frac{6.0 \times 10^7 - 4.5 \times 10^7}{4.5 \times 10^7}$ or $\frac{6.0 \times 10^7 - 4.5 \times 10^7}{6.0 \times 10^7} \times 100$ oe A1 cao OR M2 $\frac{6.0 \times 10^7}{4.5 \times 10^7} \times 100 - 100 = 33.3$ (%) (M1 $\frac{6.0 \times 10^7}{4.5 \times 10^7} \times 100$ OR 133.3 (%)) A1 cao NB Accept any of the above expressions without any reference to 10^7 .
17		0.7 0.8, 0.2, 0.8	2	B1 for 0.7 (Jasmine) B1 for 0.8, 0.2, 0.8 (Charlie)