

Edexcel GCSE

Mathematics B 1388

Paper 5513

March 2007

advancing learning, changing lives

Mark Scheme (Results)

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

Remember: if you are having difficulty making a decision on how you should mark a candidate response contact your Team Leader for advice, or send the item to review.

Section A				
No	Working	Answer	Mark	Notes
1	(a)	$\frac{1}{5}$	1	B1 for $\frac{1}{5}$ or 0.2 oe
	(b)(i)	1	3	B1
	(ii)	$\frac{1}{100}$		B1 for $\frac{1}{100}$ or 0.01 oe
	(iii)	7		B1
2	(a)	$5x > 9 - 2$ $5x > 7$	2	M1 for $5x > 9 - 2$ A1 for $x > \frac{7}{5}$ oe as final answer
	(b)	$x^2 + 3x + 7x + 21$	2	B2 fully correct (B1 for 3 out of 4 terms correct in working, including signs or 4 terms correct, incorrect signs)
3	(a)	0.7, 0.7, 0.3, 0.7	2	B1 for 0.7 oe B1 for 0.7, 0.3, 0.7 oe
	(b)	$(0.3 \times 0.7) + (0.7 \times 0.3)$ $= 0.21 + 0.21$	3	M1 for 0.3×0.7 or 0.21 seen M1 for $(0.3 \times 0.7) + (0.7 \times 0.3)$ oe A1 cao
4		6.8×10^{12}	2	M1 for 6.8×10^n or $a \times 10^{12}$ where $1 \leq a < 10$ or 6800000000000 A1 cao
5	(a)	$(x + 4)^2 - 16 + 19$	3	M1 for $(x + 4)^2$ or $x^2 + px + px + p^2$ A1 for $p = 4$ A1 for $q = 3$
	(b)	3	1	B1 ft

Section B				
No	Working	Answer	Mark	Notes
1 (a)		69.5	1	B1 cao
(b)		70.5	1	B1 for 70.5 or $70.\dot{4}9$
2		Bisector	2	M1 for arcs on PQ and RQ within relevant guidelines A1 for bisector $\pm 2^\circ$
3 (a)	$V = \pi 8^2 15$ $= 960\pi$	3016	2	M1 for $\pi \times 8^2 \times 15$ or 960π seen A1 for $3014 \leq \text{answer} \leq 3017.2$
(b)	"3016" $\times 2.5$	7540	2	M1 for "3016" $\times 2.5$ A1 ft
4	$y - k = \frac{x}{3}$	$3(y - k)$ oe	2	M1 a correct step to make x the subject A1 for $x = 3(y - k)$ oe
5 (i)		C	2	B1 cao
(ii)		B		B1 cao
6	$\frac{15 \times 40}{120}$	5	2	M1 for $\frac{15 \times 40}{120}$ oe or $40 \div "120 \div 15"$ A1 cao SC : Award B1 for an answer of 320
7	$\frac{1}{2} \times 8 \times 5 \times \sin 130^\circ$ $= 20 \times 0.766\dots$	15.3(20888)	2	M1 for $\frac{1}{2} \times 8 \times 5 \times \sin 130^\circ$ A1 for 15.3 – 15.321
8	$\frac{(x+5)(x+2)}{(x+5)(x-5)}$	$\frac{x+2}{x-5}$	3	M1 for $(x+5)(x+2)$ M1 for $(x+5)(x-5)$ A1 cao