Edexcel GCSE

Mathematics B 2544

Paper 5542H/09

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Mark Scheme (Results)

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Mathematics B 2544

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

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.

5542H - Section A					
No		**Working**	**Answer**	**Mark**	**Notes**
1	(a)	$1 - (0.3 + 0.25)$	0.45 oe	2	M1 for $1 - (0.3 + 0.25)$ A1 for 0.45 oe oe meaning that the probability must be given alternatively as a fraction (45/100 or an equivalent fraction), or as a decimal (45%). Ratios, words (eg 45 to 100) get A0,could get M1 if working shown. NB the decimal is not always clear; use working to clarify its existence if necessary, by 045 on the answer line without other working to substantiate should get 0 marks. Accept a comma for the decimal.
	(b)	0.3×200	60 or "60 out of 200"	2	M1 for 0.3×200, or for sight of the number 60 on the answer line (eg in 60/200). A1 cao
2		$4 \times 10 = 40$ $7 \times 30 = 210$ $10 \times 50 = 500$ $22 \times 70 = 1540$ $7 \times 90 = 630$ $(40+210+500+1540+630) \div 50$	58.4	4	M1 for use of fx with x consistent within intervals (including end points) M1 (dep) for use of mid-intervals (eg 10 or 10.5) M1 (dep on 1st M1) for "$(40+210+500+1540+630) \div 50$ or $2920 \div 50$ A1 cao Alternative using 10.5 etc is $2945 \div 50 = 58.9$
3	(a)	"How many times each month do you visit the sports centre?"	Response boxes, for eg. 0 to 4 times 5 to 10 times Over 10 times	2	B1 for reference to a time period; week, month,.. OR a question with time period implied by responses. B1 for at least 3 non-overlapping numeric boxes (condone if not exhaustive; include never as 0, but other as not numeric. Do not award any marks for questions that do not have quantitative response boxes. Do not accept frequency tables, or data collection sheets.
	(b)	$\frac{750}{5000} \times 200$	30	2	M1 for $\frac{750}{5000} \times 200$ A1 cao

5542H - Section A					
No		**Working**	**Answer**	**Mark**	**Notes**
4	(a)	(255+235+260)÷3 (235+260+261)÷3 (260+261+298)÷3	250, 252, 273	2	M1 for either (255+235+260)÷3 or (235+260+261)÷3 or (260+261+298)÷3 or 250 or 252 or 273 in any order; condone missing brackets. A1 cao
	(b)		Sales increased	1	B1 for acceptable explanation eg rising, increasing, sell the most at the end of the year

5542H - Section B				
No	**Working**	**Answer**	**Mark**	**Notes**
1 (a)		Negative	1	B1 cao
(b)		Line passing between ((10.25,7.5) & (10.25,8) and (12,6.25) & (12.5,6.25)	1	B1 for line within given limits
2		0 | 7 8 9 9 1 | 0 0 0 2 5 5 6 7 8 9 2 | 1 1 3 8 3 | 0 2 1 | 7 = 17 years	3	B3 for fully correct diagram with correct key [B2 for ordered leaves (condone one error), key or no key OR unordered leaves (condone one error) + correct key] [B1 for unordered leaves (condone one omission), no key OR for a correct key (ignore diagram) OR for ordered leaves (no more than 2 errors with a correct key] NB: "one error" defined as either one number missing, one extra number, or one number misplaced (which may not be two errors); accept commas; key as shown opposite (1 line 7 = 17, but candidate could use different numbers, or give several alternatives; condone missing units).
3 (a)(i)		12	2	B1 Accept 11<median<13
(ii)		5		B1 Accept 4<LQ<6
(b)		LQ at 5, M at 12, UQ at 18.5, end of whiskers at 0 and 32	3	B1 for whiskers at 0, 32 B1 for box ending at 5, 18.5 (or ft the 5 from (aii)) B1 for median at 12 (or ft from (ai)) NB: all the above to a tolerance of ±1 full square
4 (a)		3	1	B1 cao
(b)		Frequency density of 9	1	B1 cao (4.25 cm high column; allow any line from 4.2 to 4.3 cm high, inclusive).

5542H - Section B				
No	**Working**	**Answer**	**Mark**	**Notes**
5	1 − P(2 greens) $=1-\frac{5}{9}\times\frac{4}{8}$ $=1-\frac{20}{72}$	$\frac{52}{72}$ oe	3	M1 for p(2nd stone) being a fraction with a denominator of 8 M1 for $1-\frac{5}{9}\times\frac{4}{8}$ oe or the sum of any 2 of: $\frac{4}{9}\times\frac{3}{8}$, $\frac{4}{9}\times\frac{5}{8}$, $\frac{5}{9}\times\frac{4}{8}$ (ignore the sum of additional products) A1 for $\frac{52}{72}$ oe [0.722…] [SC: if no marks awarded, B1 for $1-\frac{5}{9}\times\frac{5}{9}$ oe] OR if using a sample space approach: M1 for correct table M1 for correct identification of all the cases A1 for $\frac{52}{72}$ oe [0.722…]