

Edexcel GCSE

Mathematics B 2544

Paper 5542H/09

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

**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	$0 \times 5 + 2 \times 16 + 4 \times 6 + 20 \times 2 + 30 \times 1$ $= 0 + 32 + 24 + 40 + 30$ $= 126$ $126 \div 30$	4.2 (0)	3	<p>M1 for <math>0 \times 5 + 2 \times 16 + 4 \times 6 + 20 \times 2 + 30 \times 1</math> or at least 3 correct entries of 0,32,24,40,30 in the table or 126 seen</p> <p>M1 (dep) for “126” <math>\div</math> 30 A1 cao</p> <p><b>SC:</b> Award M2 for <math>131 \div 30</math> without working</p>
2	$\frac{1}{6} + \frac{1}{6} = \frac{2}{6}$	$\frac{1}{3}$ oe	2	<p>M1 for <math>\frac{1}{6}</math> oe seen or identifying both the 2 and 3 sections in a sample space diagram of {1,2,3,4,5,6}</p> <p>A1 for an answer of <math>\frac{1}{3}</math> oe</p> <p>NOTE: An answer of 2 in 6, 2 out of 6, 2 : 6, oe = M1 A0</p>

5542H - Section A				
No.	Working	Answer	Mark	Notes
3 (a)		No time period, overlapping boxes, no under £1	2	B2 (B1 for each criticism)
(b)		“How much do you spend on magazines each week?” Under £1, £1 to £3, over £3	2	B1 for including a time period; eg, week, month B1 for at least 3 correct non-overlapping, adjacent numerical ranges with at least one extreme indicated
(c)	$\frac{40}{560} \times 100$	7	2	M1 for $\frac{40}{560} \times 100$ o.e. or 7.1(42857) or 7.2 seen A1 cao SC $\frac{40}{1120} \times 100$ oe = M1A0
4 (a)	$(3940 + 3810 + 4230 + 4560) \div 4$ $= 16540 \div 4$	4135	2	M1 for $(3940 + 3810 + 4230 + 4560) \div 4$ A1 cao
(b)		Plot (6.5, “4135”)	1	B1 ft for plotting (6.5, 4135) or (6.5, “4135”) $\pm 1$ square
(c)		Trend line	1	B1 for a correct straight trend line between (2.5, 3600) and (2.5, 3700) to (6.5, 4100) and (6.5, 4200) with at least 1 point on either side of the line or at least 2 points on the line.

5542H - Section B				
No.	Working	Answer	Mark	Notes
1	98 – 71	27	2	M1 for 98 – 71 or 71 – 98 or 8 – 1 or 1 – 8 or –27 or 2 7 seen A1 cao
2		(12, 2), (16, 5), (20, 12), (24,8) and (28, 3) plotted and joined with line segments	2	B2 for a correct frequency polygon  (B1 for 4 correct points plotted ( $\pm 1$ sq) and joined or 5 correct points ( $\pm 1$ sq) not joined or correct polygon translated within 0.8 cm left or right)  Condone lines <12 min or >28 min or “(12,2)” to “(28,3)” joined. Ignore histograms drawn
3	(a)	Cost is less the further from the city centre	1	B1 for decrease in cost with increase in distance. Accept negative correlation
	(b)	Line between (1,1.00), (1,1.20) and (9,0.45), (9,0.64)	1	B1 for a line within guidelines with at least 2 points on either side of the line
	(c)	Their reading for 4.5km	1	B1ft for a reading for the cost ( $\pm 1$ square) from “line of best fit” at $4.5 \pm 0.1$ (dep on a straight line of negative gradient in (b))

5542H - Section B				
No.	Working	Answer	Mark	Notes
4		(3) 15 30 38 40	1	B1 cao
5 (a)  (b)		16  Frequency density of 5 (for $12 < A \leq 15$ ) and 2.4 (for $15 < A \leq 20$ )	1  2	B1 cao  B2 for a correctly completed histogram $\pm \frac{1}{2}$ sq in height (numbers are not needed on f.d. axis)  (B1 for one correct block. NOTE: If only $15 < A \leq 20$ block correct, the correct scale must be shown on the fd axis.) B1 for 5 and 2.4 calculated but not drawn correctly
6	$\frac{2}{5} \times \frac{1}{6} + \frac{3}{5} \times \frac{1}{2}$	$\frac{11}{30}$ oe	4	M1 for $\frac{3}{5}$ or $\frac{1}{6}$ seen (could be part of a calculation)  M1 indep for $\frac{2}{5} \times \frac{1}{6}$ oe or $\frac{3}{5} \times \frac{1}{2}$ oe  M1 for $\frac{2}{5} \times \frac{1}{6} + \frac{3}{5} \times \frac{1}{2}$  A1 for $\frac{11}{30}$ oe