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Edexcel GCSE

Mathematics B 1388

Paper 5536/ 17

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Mark Scheme

Edexcel GCSE

Mathematics B 1388

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

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No.	**Working**	**Ans.**	**Mark**	**Notes**
1(a)	450 × 28 = 12600p = £126 15 × 9.51 = £142.65 £142.65 + £126 =	268.65	3	M1 for 450 × 28 or 0.28 × 450 or digits 126 seen M1 for 9.51×15 or 951 × 15 or digits 14265 seen A1 cao
(b)	360 × 1.175 OR $360 \times \frac{17.5}{100} = 63$ 360 + 63 OR 10% = 36 5% = 18 2½% = 9 63	£423	3	M2 for 360 × 1.175 oe A1 cao Or M1 for $360 \times \frac{17.5}{100}$ (=63) Or attempt at 10%, +5%, +2½% e.g. 36+18+9 seen M1 (dep) 350 + "63" A1 cao
2(a)		5	1	B1 cao
(b)	$4y = 11$	2.75	2	M1 Movement of a term eg $4y = 12 - 1$ A1 2.75 or $2\frac{3}{4}$ or $\frac{11}{4}$ oe
(c)		$3cd$	1	B1 cao
(d)		$3p - q$	2	B2 for $3p - q$ (B1 for $3p$ or $\pm q$ or $3p+-q$)
3		overlay	2	M1 for a pair of intersecting arcs, centres the ends of the given line tolerance of ± 2 mm A1 for triangle within guidelines [SC: B1 for triangle drawn within guidelines]

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4	78+119+105 = 302 360 – 302 =58 180–58	122	3	M1 360 – (78+119+105) or 360 – 302 or 58 seen M1 (indep) 180 – "58" where "58" < 90 but not 78 A1 cao
5	4.5 + 2.7225	7.2225	2	M1 for 4.5 or 2.7225 A1 7.2225 cao
6	3kg peaches is £1.68 £2.34 – £1.68 = £0.66 £0.66 ÷ 2 = £0.33	£0.33 or 33p	3	M1 2 × £0.84 or digits 168 seen M1 (dep) digits 234 – digits "168" or digits 66 seen A1 £0.33 or 33p (units consistent with answer) N.B. 0.33 or 33 without units gets M2A0, £0.33p or £.33p gets M2A1
7	$4y - 2y = 9 - 3$	3	2	M1 Attempts to move both y and number term eg $4y - 2y = 9 - 3$ A1 cao
8		$9n$, $3\times6n$, $(3n)^2$	3	B1 each correct value (–B1 each tick over 3, to a minimum of B0)
9	10 × (3 + 8 + 3 + 8) + 2 × 3 × 8 = 220 + 48 or 2 × 8 × 3 + 2 × 8 × 10 + 2 × 3 × 10	268 cm^2	3	M1 for a correct method to find the area of one rectangle M1 for attempt to find correct area of **all** rectangles with attempt to add A1 cao
10	12 × 10 × 10	1200	2	M1 for 10 × 10 seen A1 cao

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No.	**Working**	**Ans.**	**Mark**	**Notes**
11	$2000\times1.05^2 = 2000\times1.1025$ **or** $2000\times1.05 = 2100$ $2100\times1.05 = 2205$	£2205	3	M2 2000×1.05^2 (M1 2000×1.05^n, $n \neq 2$) A1 cao Or M1 $\frac{5}{100} \times 2000$ (oe) or 100 or 200 or 2100 or 2200 seen M1 (dep) $\frac{5}{100} \times$ (2000 + "100") A1 cao SC B2 for £2315.25 seen (3 yrs)
12(a)		Reason	1	B1 eg "mode is 7" "the mode is the one of which there is the most" "because its got the lowest frequency"
(b)		7	1	B1 cao NB 6.5 leading to 7 gets B0
(c)		Beccy, as a bigger sample	1	B1 ft their answer to (c)
13(i)		$(x - 2)(x - 5)$	3	M1 for $(x \pm 2)(x \pm 5)$ A1 cao
(ii)		$x = 2$, $x = 5$		B1 ft for $x = 2$, $x = 5$

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No.	**Working**	**Ans.**	**Mark**	**Notes**
14(a)		6, –2, 0	2	B2 all 3 correct (B1 two correct)
(b)		Graph	2	B1 for 5 or 6 points plotted B1 Joined with a smooth curve For either B mark ft on (a) if at least B1 awarded
(c)	$y = 2.5$ drawn	–0.5, 2.5	2	B1 –0.4 to –0.6 or ft graph ±0.1 B1 2.4 to 2.6 or ft ft graph ±0.1 SC If B0 then B1 $y = 2.5$ drawn at least $-1 \leq x \leq 2$; tolerance within y=2 and y=3 NB Accept coordinates that define the values.
15	$\tan x = \frac{4.5}{12} = 0.375$ $x = \tan^{-1} 0.375$	20.6	3	M1 $\tan$ *and* $\frac{4.5}{12}$ M1 $\tan^{-1}\left(\frac{4.5}{12}\right)$ A1 20.55 – 20.6 RAD: 0.3587 GRAD: 22.84 for M2
16(a)	$\frac{1240+1270+1330}{3}$	1280	2	M1 $\frac{1240+1270+1330}{3} = \frac{3840}{3}$; accept $1240 + 1270 + 1330 \div 3$ oe A1 cao
(b)	$\frac{1300+1330+x}{3} = 1350$ or $(1350 \times 3) - (1300 + 1330) = 4050–2630$	1420	2	M1 $\frac{1300+1330+x}{3} = 1350$ Or $(1350 \times 3) - (1300 + 1330)$ or 4050–2630 A1 cao

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No.	**Working**	**Ans.**	**Mark**	**Notes**
17	(100%–25%)×Normal Price=£12.75 Normal Price = £12.75÷0.75	£17	3	M1 (100%–25%)×Normal Price=£12.75 or 0.75 or 75% seen M1 £12.75÷0.75 or £12.75 × $\frac{4}{3}$ oe A1 cao Alternative: M1 25% is £4.25 or £12.75 ÷3 (=£4.25) M1 (dep) £12.75 + "£4.25" oe A1 cao
18	$6x + 2y = 16$ $4x + 2y = 9$ $2x = 7$, $x = 3.5$ $3\times3.5 + y = 8$, $y = -2.5$	$x = 3.5$, $y = -2.5$	3	M1 full method to eliminate x or y, allow one accuracy error M1 (dep) for substitution of one variable in one of the equations, or by appropriate method after starting again A1 both cao
19	130÷2	65 Reason	2	B1 cao B1 'angle at centre is twice the angle at the circumference' Allow "origin & O & middle" and "edge & perimeter"