GCSE

MATHEMATICS (8300/3F)

Paper 3 Foundation

Mark scheme

Specimen 2015

Version 2.0

Principal Examiners have prepared these mark schemes for specimen papers. These mark schemes have not, therefore, been through the normal process of standardising that would take place for live papers.

Further copies of this Mark Scheme are available from aqa.org.uk

Glossary for Mark Schemes

GCSE examinations are marked in such a way as to award positive achievement wherever possible. Thus, for GCSE Mathematics papers, marks are awarded under various categories.

If a student uses a method which is not explicitly covered by the mark scheme the same principles of marking should be applied. Credit should be given to any valid methods. Examiners should seek advice from their senior examiner if in any doubt.

M	Method marks are awarded for a correct method which could lead to a correct answer.
A	Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.
B	Marks awarded independent of method.
ft	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
SC	Special case. Marks awarded within the scheme for a common misinterpretation which has some mathematical worth.
M dep	A method mark dependent on a previous method mark being awarded.
B dep	A mark that can only be awarded if a previous independent mark has been awarded.
oe	Or equivalent. Accept answers that are equivalent. eg accept 0.5 as well as $\frac{1}{2}$
[a, b]	Accept values between a and b inclusive.
3.14 …	Allow answers which begin 3.14 eg 3.14, 3.142, 3.1416
Use of brackets	It is not necessary to see the bracketed work to award the marks.

Examiners should consistently apply the following principles

Diagrams

Diagrams that have working on them should be treated like normal responses. If a diagram has been written on but the correct response is within the answer space, the work within the answer space should be marked. Working on diagrams that contradicts work within the answer space is not to be considered as choice but as working, and is not, therefore, penalised.

Responses which appear to come from incorrect methods

Whenever there is doubt as to whether a student has used an incorrect method to obtain an answer, as a general principle, the benefit of doubt must be given to the student. In cases where there is no doubt that the answer has come from incorrect working then the student should be penalised.

Questions which ask students to show working

Instructions on marking will be given but usually marks are not awarded to students who show no working.

Questions which do not ask students to show working

As a general principle, a correct response is awarded full marks.

Misread or miscopy

Students often copy values from a question incorrectly. If the examiner thinks that the student has made a genuine misread, then only the accuracy marks (A or B marks), up to a maximum of 2 marks are penalised. The method marks can still be awarded.

Further work

Once the correct answer has been seen, further working may be ignored unless it goes on to contradict the correct answer.

Choice

When a choice of answers and/or methods is given, mark each attempt. If both methods are valid then M marks can be awarded but any incorrect answer or method would result in marks being lost.

Work not replaced

Erased or crossed out work that is still legible should be marked.

Work replaced

Erased or crossed out work that has been replaced is not awarded marks.

Premature approximation

Rounding off too early can lead to inaccuracy in the final answer. This should be penalised by 1 mark unless instructed otherwise.

Q	Answer	Mark	Comments
1	0.8	B1	
2	chord	B1	
3	2450	B1	
4	1 hour 15 minutes	B1	
5	$2w$ or $-7x$	M1	
	$2w - 7x$	A1	Do not ignore fw for final mark

Q	Answer	Mark	Comments
6	**Alternative method 1**		
	At least four 4-digit numbers listed greater than 8000	M1	ie at least four from 8245 8254 8425 8452 8524 8542
	6	A1	
	Alternative method 2		
	At least four 3-digit numbers listed using 2, 4 and 5	M1	ie at least four from 245 254 425 452 524 542
	6	A1	
	Alternative method 3		
	$(1 \times)\, 3 \times 2\, (\times 1)$	M1	
	6	A1	

Q	Answer	Mark	Comments
7	Any two from: (Vertical scale) does not start at 0 or incorrect height bars or vertical scale is incorrect Gaps (between bars not equal) No label(s) (on vertical scale) (frequency)	B2	oe Any order B1 for one correct

Q	Answer	Mark	Comments
8(a)	Correct reflection with mirror line shown	B1	
8(b)	Correct enlargement	B1	

Q	Answer	Mark	Comments
9(a)	**Alternative method 1**		
	$35 \div 5 = 7$	M1	
	their $7 \div 2$ or 3.5 or 3	M1	
	10	A1	SC2 10.5
	Alternative method 2		
	£10 for 3	M1	
	£30 for 9	M1	
	10	A1	SC2 10.5
9(b)	$5 + 3.5 + 2 + 2.5$ or 13	M1	oe Allow one error
	$260 \div$ their 13 or 20	M1	
	their 20×2.5	M1dep	oe dependent on 2nd method mark
	50	A1	

Q	Answer	Mark	Comments
10	9 and 4	B2	Either order B1 6, 4 and 3 or 13 seen or 24 and 31 seen

Q	Answer	Mark	Comments
11(a)	13	B1	
11(b)	× 2 + 1	B1	
11(c)	25	B1	

Q	Answer	Mark	Comments
12	3729 × 0.15 or 559.35 or 3729 × 15 or 55935 or 3506 × 0.17 or 596.02 or 3506 × 17 or 59602	M1	
	their 596.02 − their 559.35 or their 59602 − their 55935	M1dep	
	36.67	A1	

Q	Answer	Mark	Comments
13	area A = 24(cm^2) or area B = 6 (cm^2)	M1	
	24 : 6	A1	
	4 : 1	B1ft	ft simplifying their ratio

Q	Answer	Mark	Comments
14	**Alternative method 1**		
	6300 × 2.58	M1	oe
	16 254	A1	
	Alternative method 2		
	Fully correct build up method	M1	eg 100% = 6300 and 50% = 6300 ÷ 2 or 3150 and 1% = 6300 ÷ 100 or 63 and 2 × 6300 + their 3150 + 8 × their 63
	16 254	A1	

Q	Answer	Mark	Comments
15	False with valid reason	B1	eg False It is $a \times b$ False The answer is 15
	False with valid reason	B1	eg False 5 squared is 25 then you double False The answer is 50

Q	Answer	Mark	Comments
16	165, 180 and 195 shown with no others	B2	B1 at least one of 165, 180, 195 identified as a multiple of 15

Q	Answer	Mark	Comments
17	**Alternative method 1**		
	$\frac{160}{360}$ or $5220 \div 360$ or 14.5	M1	oe
	2320	A1	
	Alternative method 2		
	$\frac{64 + 136}{360}$ or $\frac{200}{360}$ or $5220 \div 360$ or 14.5 or 2900	M1	oe
	2320	A1	

Q	Answer	Mark	Comments
18(a)	Vertical scale correctly marked up to 15	B1	
	At least two correct points plotted	M1	
	Straight line from (0, 0) to (10, 15)	A1	
18(b)	13.5	B1ft	ft their line $\pm \frac{1}{2}$ square tolerance

Q	Answer	Mark	Comments
19	40 ÷ 3.5 or 11.(4) or 37 ÷ 2.5 or 14.(8) or 40 ÷ 2.5 or 16 or 37 ÷ 3.5 or 10.(6)	M1	
	40 ÷ 3.5 and 37 ÷ 2.5 or 40 ÷ 2.5 and 37 ÷ 3.5	M1	
	Room A 11 babies or 16 toddlers or Room B 10 babies or 14 toddlers or 11 + 14 (= 25) or 10 + 16 (= 26)	A1	
	25 and 26	A1ft	ft dependent on both method marks

Q	Answer	Mark	Comments
20	+ 8, + 12, + 16 seen or implied or 40 + 20	M1	
	60	A1	

Q	Answer	Mark	Comments
21	7 7 11 and 11 11 3 with no other answers given.	B4	B3 7 7 11 and 3 3 19 or 11 11 3 and 3 3 19 B2 7 7 11 or 11 11 3 B1 Three primes that sum to 25 eg 3, 5, 17 or Three primes with two equal eg 5, 5, 11 or Three sides with two equal that sum to 25 eg 3, 3, 19 or 8, 8, 9

| **22** | $-7 \leqslant x < 6$ | B1 | |

| **23** | 2.5 cm/s | B1 | |

24(a)	Valid reason Any indication that actual outcomes do not always match theoretical probability	B1	eg It's just chance Might get two of one number
24(b)	$7 + 12 + 9$ or $50 - (4 + 5 + 13)$ or 28	M1	oe
	$\frac{28}{50}$ or $\frac{14}{25}$ or 0.56	A1	

| **25** | 3×180 | M1 | oe |
| | 540 with correct method shown | A1 | SC1 540 without correct method shown |

Q	Answer	Mark	Comments
26	**Alternative method 1**		
	60×0.5 or 30	M1	oe
	$(100 - 60) \times 0.2$ or 8	M1	oe
	38	A1	SC2 0.38
	Alternative method 2		
	Implies boys are 40% and works out 50% of their girl total	M1	eg 60 and 40 seen and $\frac{1}{2} \times 60 = 30$ or 120 and 80 seen and $\frac{1}{2} \times 120 = 60$
	Works out 20% of their boy total	M1dep	eg 0.2×40 or 8 or 0.2×80 or 16
	38	A1	oe

Q	Answer	Mark	Comments
27(a)	$3a(3a - 2)$	B2	B1 $a(9a - 6)$ or $3(3a^2 - 2a)$
27(b)	$(x + a)(x + b)$	M1	where $ab = 20$ or $a + b = -12$
	$(x - 2)(x - 10)$	A1	
	2 and 10	B1ft	ft their pair of brackets

Q	Answer	Mark	Comments
28(a)	(2, 16)	B1	
28(b)	12	B1	
28(c)	−2 and 6	B1	

Q	Answer	Mark	Comments
29	9.83×7 or 68.81	M1	
	their $68.81 - 9.75 - 9.79 - 9.80 -$ $9.88 - 9.94 - 9.98$ or 9.67	M1dep	oe
	9.67 and Yes	A1	

Q	Answer	Mark	Comments
30	$7x - 3 = 3x + 3$	B1	
	$7x - 3x = 3 + 3$ or $4x = 6$	M1	oe isolating x and number terms
	$x = 1.5$	A1	
	7.5 or $7\frac{1}{2}$	B1ft	ft $7 \times$ their $1.5 - 3$ or $3($ their $1.5 + 1)$

Q	Answer	Mark	Comments
31	$\angle CDB = 180 - 52 - 100$ or 28 or $\angle ABD = 180 - 52 - 100$ or 28	M1	oe
	$\angle ADB = 180 - 124 -$ their 28 $= 28$	M1dep	oe
	$\angle ABD = 28$ and $\angle ADB = 28$ and isosceles or two angles equal	A1	

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