GCSE
MATHEMATICS

PRACTICE PAPER SET 3

Foundation Tier Paper 3

Mark Scheme

8300/3F

Version 1.0

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.
[*a*, *b*)	Accept values $a \leq$ value $< b$
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.

Continental notation

Accept a comma used instead of a decimal point (for example, in measurements or currency), provided that it is clear to the examiner that the candidate intended it to be a decimal point.

Q	Answer	Mark	Comments
1	$x = 4$	B1	
2	1 : 200	B1	
3	$\frac{6}{7}$	B1	
4	$\frac{1}{3}$	B1	
5(a)	16	B1	
	Additional Guidance		
5(b)	2187	B1	
	Additional Guidance		
6(a)	Correct key	B1	
	Correct symbols	B1ft	ft their key
	Symbols lined up vertically	B1	
	Additional Guidance		
	Symbols do not need to be lined up perfectly, but the lengths of the rows should be in order		

Q	Answer	Mark	Comments
6(b)	$\frac{8}{20}$ or $\frac{4}{10}$ or $\frac{2}{5}$ or 8 ÷ 20 (× 100) or 0.4(0)	M1	
	40	A1	
	Additional Guidance		
6(c)	13.5(0) ÷ 3 or 4.5(0)	M1	
	13.5(0) – their 4.5(0) or 9(.00) or 13.5(0) + 2.4(0) or 15.9(0)	M1	13.5(0) × $\frac{2}{3}$ oe gets M2
	their 9(.00) + 2.4(0) or their 15.9(0) – their 4.5(0) or 11.4(0)	M1	
	their 11.4(0) ÷ 100 × 15 or 1.71 or their 11.4(0) × 1.15	M1	oe
	13.11	A1	SC4 12.19
	Additional Guidance		
	SC4 is for including drink in the discount		
7(a)	5.9(0) ÷ 2 (× 5) or (£)2.95 (× 5) or 5.9(0) ÷ 2 × 3 or (£)8.85	M1	
	14.75	A1	
	Additional Guidance		

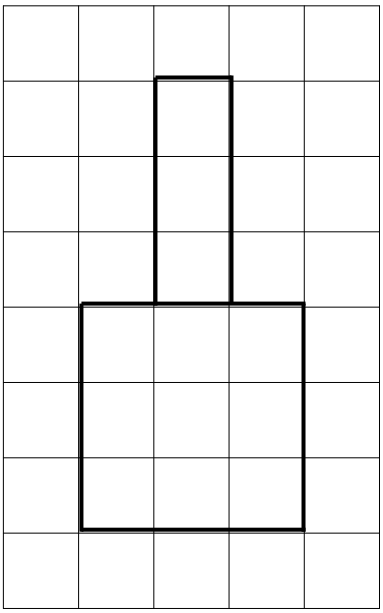
Q	Answer	Mark	Comments
7(b)	500 × 8000 or 4 000 000 or 500 ÷ 1000 or 0.5 or 500 × 8 or 8000 ÷ 2 or 8000 × 0.5 or 1 litre = 1000 millilitres seen or implied	M1	
	4000	A1	
	Additional Guidance		
8	Identifies (11 and) 13 and 17 and 19	M1	
	Identifies 23 and 29	M1	
	1329 and 1723 and 1729 and 1923	A1	SC2 all 4 correct with one incorrect number treated as prime or any 3 correct with no incorrect SC1 any 3 correct with one incorrect number treated as prime or any 2 correct with no incorrect
	Additional Guidance		
	1329, 1723, 1729, 1923, 1327, 1927 (treats 27 as a prime number)		SC2

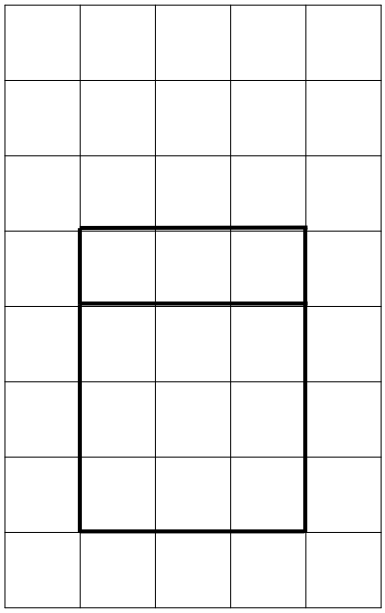
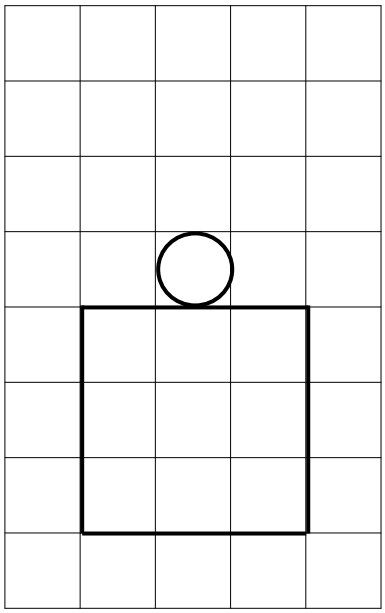
Q	Answer	Mark	Comments
9	**Alternative method 1**		
	8400 ÷ 350 or 24	M1	oe method to work out 24
	their 24 × 115	M1dep	
	2760	A1	
	Alternative method 2		
	8400 ÷ 3 ÷ 350 or 8	M1	oe method to work out 8
	their 8 × 3 × 115	M1dep	
	2760	A1	
	Alternative method 3		
	350 × 3 = 1050 and 8400 ÷ their 1050 or 8	M1	
	their 8 × 3 × 115	M1dep	
	2760	A1	
	Additional Guidance		
10(a)	5	B1	
	Additional Guidance		

Q	Answer	Mark	Comments
10(b)	**Alternative method 1**		
	Lists multiples of 6 to at least 18 and 8 to at least 16	M1	
	24	A1	SC1 any other common multiple 48, 72 …
	Alternative method 2		
	(6 =) 2 × 3 and (8 =) 2 × 2 × 2	M1	
	24	A1	
	Additional Guidance		
11	57 in Away	B1	
	117 in Home Male	B1	
	66 in Home Female	B1ft	ft 183 – their 117
	12 in Away Female	B1ft	ft their 57 – 45 SC1 total of four Male and Female sections is 240
	Additional Guidance		

Q	Answer	Mark	Comments
12	8529 ÷ 42 or 203(.07…) or 204	M1	oe $203\frac{1}{14}$
	their 203 × 42 or 8526 or their (0).07… × 42	M1dep	Multiplies 42 by the whole number part of their answer Multiplies 42 by the decimal part of their answer
	3	A1	
	Additional Guidance		
	Accept long or short division with remainder 3 shown		M1M1A1
13 (a)	16	B1	
	Additional Guidance		
13(b)	It is more than the whole pot contains	B1	oe
	Additional Guidance		
	Correct answer is 12.7		B1
13(c)	He has 450 and 57.15 the wrong way round	B1	oe
	Additional Guidance		
13(d)	12.7	B1	
	Additional Guidance		
14	factor	B1	

Q	Answer	Mark	Comments
15	(It should be) 8 faces	B1	oe
	(It should be) 18 edges	B1	oe
	Additional Guidance		
16	**Alternative method 1**		
	63 – 15 or 48 or 89 – 15 or 74	M1	May be seen in Austria only section of the Venn diagram May be seen in France only section of the Venn diagram
	(63 – 15) (+) (89 – 15) (+) 15 (+) 54 or 48 (+) 74 (+) 15 (+) 54	M1	Fully correct Venn diagram
	191	A1	
	Alternative method 2		
	63 + 89 – 15 or 137	M1	
	their 137 + 54	M1	63 + 89 – 15 + 54 gets M2
	191	A1	
	Additional Guidance		

Q	Answer	Mark	Comments
17(a)		B1	Mark intention 3 cm by 3 cm square with 1 cm by 3 cm rectangle positioned centrally above Must be correct size and orientation but can be anywhere on the grid
	Additional Guidance		

Q	Answer	Mark	Comments
17(b)		B1	Mark intention 3 cm by 3 cm square with 3 cm by 1 cm rectangle above Must be correct size and orientation but can be anywhere on the grid Elevations may be on either grid
		B1	Mark intention 3 cm by 3 cm square with circle diameter 1 cm positioned centrally above Must be correct size and orientation but can be anywhere on the grid Elevations may be on either grid
	Additional Guidance		

18(a)	$5 \times 1.2 \times 1.2$	M1	oe
	7.2	A1	
	Additional Guidance		

Q	Answer	Mark	Comments
18(b)	$2 = 5t^2$	M1	oe
	0.4 seen	M1dep	oe implied by –0.6(3…)
	0.6(3…)	A1	Must be the positive value only
	Additional Guidance		
19(a)	**Alternative method 1**		
	(6, 8) identified	M1	May be on diagram
	$\frac{1}{2} \times 6 \times$ their 8	M1	
	24	A1	
	Alternative method 2		
	$\frac{1}{2} \times 3 \times 4$ or 6	M1	
	their 6×2^2 or their 6×4	M1	
	24	A1	
	Additional Guidance		
19(b)	(It is) larger	B1	oe My answer was too small
	Additional Guidance		
20(a)	B	B1	
	Additional Guidance		

Q	Answer	Mark	Comments
20(b)	$(10 - 4) \div (12 - 8)$ or $6 \div 4$	M1	
	1.5	A1	oe
	Additional Guidance		
21	5 850 000 or 130 or 45 000 or 4.5 or 10^4	M1	
	4.5×10^4	A1	
	Additional Guidance		
22	$1 - 0.28$ or 0.72 or 0.28×2 or 0.56	M1	
	$1 - 0.28 - (2 \times 0.28)$ or their $0.72 - (2 \times 0.28)$ or $1 - 0.28$ – their 0.56 or 0.16	M1	
	0.08	A1	oe
	Additional Guidance		
23	$(x - 3)^2 \equiv x^2 - 6x + 9$	B1	
	Additional Guidance		
24	D	B1	

Q	Answer	Mark	Comments
25	**Alternative method 1**		
	$2(2x + 5)$ or $3(x – 1)$ or $7(x + 1)$	M1	oe
	$2(2x + 5) + 3(x – 1)$	M1	oe
	$4x + 10 + 3x – 3$	M1dep	oe Allow one error
	$7x + 7$ with correct working seen as answer to area of T-shape and $7(x + 1) = 7x + 7$ seen for area of rectangle or $7x + 7$ with correct working seen as answer to area of T-shape with factorisation to $7(x + 1)$ and area of rectangle stated as $7(x + 1)$	A1	
	Alternative method 2		
	$5(x – 1)$ or $2(x + 6)$ or $7(x + 1)$	M1	oe
	$5(x – 1) + 2(x + 6)$	M1	oe
	$5x – 5 + 2x + 12$	M1dep	oe Allow one error
	$7x + 7$ with correct working seen as answer to area of T-shape and $7(x + 1) = 7x + 7$ seen for area of rectangle or $7x + 7$ with correct working seen as answer to area of T-shape with factorisation to $7(x + 1)$ and area of rectangle stated as $7(x + 1)$	A1	
Mark scheme for 25 continues on the next page			

Q	Answer	Mark	Comments

25	**Alternative method 3**		
	$5(2x + 5)$ or $3(\frac{x}{2} + 3)$ or $7(x + 1)$	M1	oe
	$5(2x + 5) – 2[3(\frac{x}{2} + 3)]$	M1	oe Allow one error
	$10x + 25 – 3x – 18$	M1dep	oe
	$7x + 7$ with correct working seen as answer to area of T-shape and $7(x + 1) = 7x + 7$ seen for area of rectangle or $7x + 7$ with correct working seen as answer to area of T-shape with factorisation to $7(x + 1)$ and area of rectangle stated as $7(x + 1)$	A1	
	Additional Guidance		

26	Pair of intersecting arcs, equal radii > half *XY*, above and below *XY*	M1	
	Perpendicular bisector of *XY* drawn with correct construction	A1	
	Arc, centre *Y*, radius [5.3, 5.7] cm	B1	
	Correct region identified	B1ft	ft region to left of their perpendicular bisector and inside their arc
	Additional Guidance		

Q	Answer	Mark	Comments
27	**Alternative method 1**		
	$4x + y = 32$ and $2x + y = 23$	M1	oe using any letters or words
	$4x - 2x = 32 - 23$ or $2x = 9$ or $2y - y = 46 - 32$	M1	oe elimination of a letter
	First number = 4.5 or second number = 14	A1	oe
	First number = 4.5 and second number = 14	A1	oe SC3 First number = 14 and second number = 4.5
	Alternative method 2		
	Identifies a pair of values that satisfy one statement and correctly evaluates the second statement for those values	M1	
	Identifies a different pair of values that satisfy one statement and correctly evaluates the second statement for those values	M1	
	First number = 4.5 and second number = 14	A2	oe SC3 First number = 14 and second number = 4.5
	Additional Guidance		
	A1 is not possible in alternative method 2		

SP/03/15