GCSE
MATHEMATICS

NEW PRACTICE PAPER SET 2 Foundation Tier Paper 2
Mark Scheme (Published November 2015)

8300/2F

Version 1.0

In Spring 2015, students across the country took this set of practice papers as a Mock Examination. Principal Examiners have marked the papers and these mark schemes have, therefore, been through the normal process of standardisation. For some questions, Principal Examiners have written Additional Guidance based on responses seen.

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	$\frac{1}{6}$	B1	Any unambiguous indication
2	km	B1	Any unambiguous indication
3	3^4	B1	Any unambiguous indication
4	10% of 20 = 20% of 10	B1	Any unambiguous indication
5	3 ÷ 15 or 0.2 or 300 ÷ 15 or 20 or 800 or 40 ÷ (15 ÷ 3) or $3 + 3 + \frac{10}{15} \times 3$	M1	oe
	8(.00)	A1	
	Additional Guidance		
	Condone £8.00p		M1A1
6(a)	Computer	B1	Either order
	Agent in person	B1	
	Additional Guidance		
	Agent (online)		B0

Q	Answer	Mark	Comments
6(b)	20 + [15, 20] or [35, 40) or 20 + 20	M1	
	40	A1	
	Additional Guidance		

6(c)	Two different valid comparisons	B2	B1 for each valid comparison eg Higher percentage/proportion of 45 and over book on computer Higher percentage/proportion of 45 and over book over the phone Lower or similar percentage/proportion of 45 and over through an agent in person Lower percentage/proportion of 45 through an agent on line SC1 for any 2 valid statements without comparing eg More 45 and over in person than online and more 30 to 44 on computer than on phone SC1 for 2 statements with no reference to percentage or proportion eg More 45 and over book on computer and less 45 and over through an agent in person
	Additional Guidance		
	Two different valid comparisons – not just reversed		
	List of readings		B0
	More/less can be implied by statement		

Q	Answer	Mark	Comments
7	20 ÷ 1.45	M1	1.45 × 13 = 18.85 and 1.45 × 14 = 20.3(0) seen
	13.79...	A1	May be implied by 13.8
	13.8	B1ft	ft their answer greater than 1dp
	Additional Guidance		
8	angle *BCD* = 60 or angle *CBD* = 60 or angle *BDC* = 60 or angle *ABC* = 120 or 180 – 40 – 120	M1	May be seen on diagram
	20	A1	
	Additional Guidance		
9(a)	90 and 213	B1	
	71	B1ft	ft their 90 – 19 or 400 – their 213 – 97 – 19
	Additional Guidance		

Q	Answer	Mark	Comments
9(b)	$\frac{97+19}{400}$ or $\frac{97}{400}$ or $\frac{19}{400}$ or 97 + 19 or 116	M1	oe
	$\frac{116}{400}$ or $\frac{58}{200}$ or $\frac{29}{100}$ or 0.29 or 29%	A1	
	Additional Guidance		
	oe example $\frac{310}{400} \times \frac{97}{310} + \frac{90}{400} \times \frac{19}{90}$		M1
9(c)	97 + 19 × 2 or 97 + 38 or 135	M1	
	(their 135 + 25) ÷ 400 or 0.4 or 40	M1dep	
	£0.40 or 40p	A1	Must have correct units and correct money notation £0.40p M1M1A0
	Additional Guidance		

Q	Answer	Mark	Comments
10(a)	**Alternative method 1**		
	480 ÷ 20 or 24	M1	
	2400 ÷ 75 or 32	M1	
	their 24 ÷ 8 or 3 or their 32 ÷ 8 or 4 or their 24 + their 32 or 56	M1dep	dep on M1M0 or M0M1
	7	A1	
	Alternative method 2		
	20 × 8 or 160	M1	
	75 × 8 or 600	M1	
	480 ÷ their 160 or 3 or 2400 ÷ their 600 or 4	M1dep	dep on M1M0 or M0M1
	7	A1	
	Alternative method 3		
	480 ÷ 8 or 60	M1	
	2400 ÷ 8 or 300	M1	
	60 ÷ 20 or 3 or 300 ÷ 75 or 4	M1dep	Dep on M1M0 or M0M1
	7	A1	
	Additional Guidance		

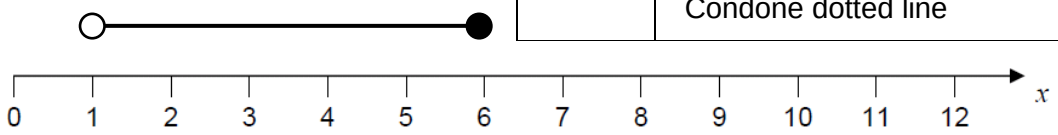
Q	Answer	Mark	Comments
10(b)	75 + 15 = 90	B1	
	90 × 0.08 = (£)7.2(0) or 90 × 8(p) = (£)7.2(0) or 720(p)	B1ft	ft their 90
	their (£) 55 + their (£)7.2(0)	B1ft	their 55 is their sales of pizza's
	£62.20	B1ft	Only ft 55 + their (£)7.20
	Additional Guidance		
	95 × 0.08 = 7.60 55 + 7.60 = 62.60		B0 B1ft B1ft B1ft
	3rd B1 must be consistent units		
	Pizza section could be blank		
	A complete copy of the originals - no marks		

Q	Answer	Mark	Comments
11(a)	True False True False	B3	B2 for 2 or 3 correct B1 for 1 correct Any unambiguous indication
	Additional Guidance		

11(b)	**Alternative method 1**		
	$l + l + \frac{1}{2}l + \frac{1}{2}l$ or $3l$	M1	
	8 seen or 32	A1	
	64	A1ft	ft (their length)^2 with M1 scored
	Alternative method 2		
	$2w + 2w + w + w$ or $6w$	M1	
	$w = 4$ or 8 seen or 32	A1	
	64	A1ft	ft (their length)^2 with M1 scored
	Alternative method 3		
	$l + w = 12$ and $l = 2w$ or $3w = 12$ or $1.5l = 12$	M1	
	$w = 4$ or 8 seen or 32	A1	
	64	A1ft	ft (their length)^2 with M1 scored
	Additional Guidance		
	Working may be on diagram		

Q	Answer	Mark	Comments
12(a)	0.2(20 000 – 10 600) or 0.2 × 9400	M1	oe
	1880	A1	
	Additional Guidance		
12(b)	10 600	B1	
	Additional Guidance		
	Accept 10 600.01 or 10 600.02 or 10 600.03 or 10 600.04		
12(c)	**Alternative method 1**		
	5200 = 0.2(E – 10 600)	M1	oe
	5200 ÷ 0.2 or 26 000	M1dep	oe 5200 × 5
	36 600	A1	
	Alternative method 2		
	5200 = 0.2(E – 10 600)	M1	oe
	5200 + 0.2 × 10600 or 5200 + 2120 or 7320	M1dep	
	36 600	A1	
	Additional Guidance		
13	5×10^{-4}	B1	

Q	Answer	Mark	Comments
14	Obtains an equivalent ratio or writes out multiples of 11 (to 33)	M1	eg 8 : 14 12 : 21 11, 22, 33
	33	A1	
	Additional Guidance		
15(a)	$3x \leqslant 9 \times 2$ or $x \leqslant 9 \times \frac{2}{3}$ or $\frac{x}{2} \leqslant \frac{9}{3}$	M1	
	$x \leqslant 6$	A1	
	Additional Guidance		
	$x \leqslant 6$ in working lines and 6 on answer line		M1A1
15(b)	$x + 2 > 12 \div 4$ or $4x + 8 > 12$	M1	
	$x > 1$	A1	SC1 > 1 SC1 $x \geqslant 1$
	Additional Guidance		
	Working uses = but recovery to $x > 1$		M1A1
	$x > 1$ in working lines and 1 on answer line		M1A1

Q	Answer	Mark	Comments
15(c)		B1ft	Correct or ft their two inequalities from (a) and (b) Condone dotted line

16(a)	15	B1	
	Additional Guidance		

16(b)	No and valid reason	B2	eg No and not in opposite directions No and not in a straight line No and 3rd side shorter than the sum of the other 2 sides B1 No and incomplete reason
	Additional Guidance		
	If neither box ticked then no may be implied by statement		

16(c)	230 – 165 or 65 or 165 – 75 or 90	M1	May be on diagram
	Carly and 90 and 65	A1	Angles may be on diagram
	Additional Guidance		

Q	Answer	Mark	Comments
17	**Alternative method 1**		
	5280 × 12 or 63 360	M1	
	their 63 360 × 2.54 or 160 934.(...)	M1	
	1609.(...) or 160 934.(...) and 160 000	A1	
	Alternative method 2		
	160 000 ÷ 2.54 or 62 992.(...)	M1	
	their 62 992 ÷ 12 (÷ 5280)	M1	
	5249.(...) which is approximately 5280 or 0.99...	A1	
18	5.5 and –5.5	B2	oe B1 for each
	Additional Guidance		
	± 5.5		B2

Q	Answer	Mark	Comments
19	Eliminate 1 pack of 8 and 1 pack of 6	B1	May be implied from later working
	Correct scaling for any 2 of the 4 options	M1	eg: **Unit costs** Any 2 of Pack of 6 = $\frac{1.95}{6}$ or 32.5(p) Pack of 8 = $\frac{2.64}{8}$ or 33(p) 2 Packs of 6 = $\frac{3.50}{12}$ or 29.(…)(p) 2 Packs of 8 = $\frac{5}{16}$ or 31(.25)(p) **Cost of 48 cans** Any 2 of Pack of 6 = 1.95 × 8 or (£)15.60 (8 packs) Pack of 8 = 2.64 × 6 or (£)15.84 (6 packs) 2 Packs of 6 = 3.50 × 4 or (£)14 (4 × 2-packs) 2 Packs of 8 = 5 × 3 or (£)15 (3 × 2-packs)
	Equivalent scalings for both 2-packs	M1dep	eg 29 and 31 or 14 and 15 etc
	Chooses 4 × 2-packs of 6 with correct values for both 2-packs seen	A1	
	Additional Guidance		
	Correct values may be seen in working		

Q	Answer	Mark	Comments
20	**Alternative method 1**		
	$10\frac{1}{2} \div \frac{7}{1000}$ or 1500	M1	oe
	their $1500 \div 3 \times 2$	M1	oe
	1000	A1	SC1 100 or 10 000
	Alternative method 2		
	$10\frac{1}{2} \div 3 \times 2$ or 7	M1	oe eg $10\frac{1}{2} : 7$
	their $7 \div \frac{7}{1000}$	M1	oe
	1000	A1	SC1 100 or 10 000
	Alternative method 3		
	$\frac{1000}{7} \div 3 \times 2$ or [95.2, 95.4]	M1	oe
	$10.5 \times$ their [95.2, 95.4]	M1	
	1000	A1	SC1 100 or 10 000
	Additional Guidance		
21(a)	B and C	B1	
21(b)	SAS	B1dep	Must have (a) correct

Q	Answer	Mark	Comments
22(a)	$\frac{4}{3} \times \pi \times 8^3$	M1	oe
	[2143, 2145] or $\frac{2048}{3}\pi$	A1	
	Additional Guidance		
	$\frac{4}{3} \times 3(.1) \times 8^3$	M0	
22(b)	8 × 2 or 16	M1	May be seen on diagram
	8 × 6 or their 16 × 3 or 48	M1	May be seen on diagram
	their 16 × their 16 × their 48	M1	oe
	12288	A1	SC2 1536
	Additional Guidance		
23	Enlargement	B1	
	(scale factor) $\frac{1}{3}$	B1	oe
	(centre) origin	B1	oe
	Additional Guidance		

SP/03/15