GCSE
MATHEMATICS

Practice Papers Set 4
Paper 1 Foundation – Mark Scheme

8300/1F

Version 1.0

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.
[*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	72	B1	
2	121 and 132	B1	
3	edges	B1	
	Additional Guidance		
4	B	B1	
	Additional Guidance		
5(a)	5×3 (+) 3×-1 (+) 2×-2 or $15 - 3 - 4$	M1	oe
	8	A1	
	Additional Guidance		
5(b)	One correctly evaluated trial of 10 questions different from part (a)	M1	oe eg $10 \times 3 = 30$ $9 \times 3 + 1 \times -2 = 25$
	Another correctly evaluated trial of 10 questions different from part (a) or $7 \times 3 + 2 \times -1 + 1 \times -2 = 17$	M1dep	eg $8 \times 3 + 2 \times -1 = 22$
	7 21 2 –2 1 –2	A1	
	Additional Guidance		

Q	Answer	Mark	Comments
6	200 (cm) or 0.25 (m) or 0.03 (kg) or 2000 (g)	B1	oe If units seen they must be correct
	$\frac{25}{200}$ or $\frac{1}{8}$ or $\frac{30}{2000}$ or $\frac{3}{200}$ or $\frac{11}{100}$	M1	oe
	$\frac{250}{2000}$ and $\frac{30}{2000}$ and $\frac{220}{2000}$	M1	oe Common denominator with at least 2 correct numerators
	$\frac{250}{2000}$ and $\frac{30}{2000}$ and $\frac{220}{2000}$	A1	oe Fractions in comparable form
	30 grams (as a fraction of 2 kilograms)	A1	Must see a correct comparison
	Additional Guidance		
	200 g		B0
	30 grams as a fraction of 2 kilograms with no other working		B0M0
7	$\frac{3}{4} \times 36$ or 27	M1	oe
	£2.70 or £3.30 or 9 coins left	M1dep	oe
	Correctly evaluated trial using 9 coins	M1dep	eg $5 \times 50p + 4 \times 20p = £3.30$
	10p × 27, 50p × 5, 20p × 4 or 10p × 27, 50p × 6, 20p × 1, 5p × 2	A1	Correct answer chosen
	Additional Guidance		
	10p × 27, 50p × 6, 10p × 3		A0

Q	Answer	Mark	Comments
8(a)	All points plotted correctly	B2	$\pm\frac{1}{2}$ square tolerance B1 for at least 5 points plotted correctly
	Additional Guidance		
8(b)	9.5	B1	oe
	Additional Guidance		
8(c)	Point identified at (10, 5)	B1	
	Valid reason	B1	eg Not close to best fit line Does not follow the trend
	Additional Guidance		
9(a)	**Alternative method 1**		
	4.5 × 1.1(0)	M1	oe
	4.5(0) and 0.45 or 450 and 45 or 495	M1dep	oe
	4.95	A1	

Q	Answer	Mark	Comments
9(a)	**Alternative method 2**		
	4.5 × 1.1(0)	M1	oe
	4.4(0) and 0.55 or 440 and 55 or 495	M1dep	oe
	4.95	A1	
	Additional Guidance		
9(b)	105 ÷ 35	M1	
	3	A1	
	Additional Guidance		
10(a)	16 cm by 12 cm	B1	
	Additional Guidance		
10(b)	$\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$	M1	
	$\frac{1}{8}$	A1	
	Additional Guidance		

Q	Answer	Mark	Comments
11	$3x + 4x + 5x + 6x$ (= 360)	M1	oe
	$18x = 360$	M1dep	Collecting terms and setting up equation
	20	A1	
	Additional Guidance		
12	**Alternative method 1**		
	8000 × 250 or 2 000 000	M1	
	8000 × 0.2 or 1600 or 1.2 seen	M1	oe
	8000 × 1.2 or 9600	M1	
	their 9600 × 200 or 1 920 000	M1dep	dep on second and third M
	2 000 000 and 1 920 000 and decrease	A1	
	Alternative method 2		
	1 – 0.2 or 0.8	M1	
	1 + 0.2 or 1.2	M1	
	0.8 × 1.2	M1dep	dep on M2
	0.96	A1	
	0.96 and decrease	A1	
	Additional Guidance		

Q	Answer	Mark	Comments
13	$8x - 6x$ or $-9 + 3$	M1	oe Collecting terms
	$2x = -6$	A1	
	-3	A1	
	Additional Guidance		
14	9	B1	
	Additional Guidance		
15	54	B1	
	Additional Guidance		
16(a)	155	B1	
16(b)	$y = 90 + 25$ or $BEG = 180 - 90 - 25$ or $BEG = 65$ or $ABE = 180 - 90 - 25$ or $ABE = 65$ and $DEB = 180 -$ their 65 or $DEB = 115$	M1	oe
	115	A1	
	Additional Guidance		

Q	Answer	Mark	Comments
17(a)	**Alternative Method 1**		
	15 ÷ 2 or 7.5	M1	
	(their 7.5 × 3 =) 22.5 or (their 7.5 × 4 =) 30	M1dep	
	4 chosen	A1	
	Alternative Method 2		
	25 × 2 or 50	M1	
	their 50 ÷ 15 or 3.3	M1dep	
	4 chosen	A1	
	Additional Guidance		
17(b)	15 × their 4 or 60 or 60 ÷ 25	M1	oe
	2.4	A1ft	oe ft their integer from part (a)
	Additional Guidance		
18	9	B1	
	Additional Guidance		
19	$6x - 15 + 8x + 4$ or $14x + c$ or $ax - 11$	M1	Allow one error
	$14x - 11$	A1	
	Additional Guidance		

Q	Answer	Mark	Comments
20	$(\frac{1}{2}) \times \pi \times 6 \times 6$	M1	oe
	$(\frac{1}{2}) \times \pi \times 6 \times 6 \div 4$	M1dep	oe
	4.5π	A1	oe
	Additional Guidance		

21(a)	20 – 3 minutes 40 seconds	M1	oe
	16 minutes 20 seconds	A1	
	Additional Guidance		

21(b)	Valid reason	B1	eg Median is in $10 < t \square 15$ class (so does not include 10 minutes)
	Additional Guidance		

	4	B1	
	Additional Guidance		
	$\left(\sqrt{4}\right)^2 = 4$ is incorrect method		B1

Q	Answer	Mark	Comments
23	Line AB extended and two equal intersecting construction arcs from B or Arc from B cutting AB and two intersections with this arc above B	M1	
	Perpendicular drawn from B with all construction arcs seen	A1	
	Fully correct triangle with $AC = 9$ cm and angle $B = 90°$	A1	tolerance ± 0.1 cm SC1 for correct triangle without construction arcs
	Additional Guidance		
24(a)	$\frac{2}{17}$	B1	
	Additional Guidance		
24(b)	$\frac{1}{17}$	B1	
	Additional Guidance		
25	–3.5 seen	M1	oe
	–9, –8, –7, –6, –5, –4	A1	Any order
	Additional Guidance		

Q	Answer	Mark	Comments
26	–72	B1	
	0	B1	
	Additional Guidance		
27(a)	3 0 3	B2	B1 for 1 or 2 correct
	Additional Guidance		
27(b)	4 or 5 of their points plotted correctly	M1	
	Fully correct smooth curve	A1	
	Additional Guidance		
27(c)	(1, –1)	B1	
	Additional Guidance		
28(a)	5.15	B1	
	5.25	B1	
	Additional Guidance		
28(b)	20.6	B1ft	ft 4 × their 5.15
	21	B1ft	ft 4 × their 5.25
	Additional Guidance		

SP/10/16