GCSE
MATHEMATICS

Practice Paper Set 4
Paper 3 Foundation – Mark Scheme

8300/3F

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	6	B1	
	Additional Guidance		
2	0.03	B1	
	Additional Guidance		
3	97	B1	
	Additional Guidance		
4	1 : 1.3	B1	
	Additional Guidance		

Q	Answer	Mark	Comments
5	**Alternative method 1**		
	1.10 + 2.30 or 3.40	M1	oe
	their 3.40 – 3.25 or 0.15 or 15(p)	M1dep	oe
	60 ÷ their 15 or 4	M1dep	oe
	4 × 3.25 + 2 × 1.10 or 4 × 2.30 + 6 × 1.10 (–0.60) or 15.80 or 15.2	M1dep	oe Allow mixed units
	15.20	A1	Correct money notation
	Alternative method 2 - T & I method		
	One correctly evaluated trial using more drinks than sandwiches with a total of 10 items using the offer	M1	eg 7 drinks and 3 sandwiches = 3 × 3.25 + 4 × 1.10 = 14.15
	One correctly evaluated trial using more drinks than sandwiches with a total of 10 items not using the offer (same amounts as above)	M1	eg 7 drinks and 3 sandwiches = 7 × 1.10 + 3 × 2.30 = 14.60
	Difference in prices calculated	M1dep	eg 14.60 – 14.15 = £0.45 or 45p
	A different trial correctly evaluated both with and without the offer and the difference calculated	M1dep	
	15.20	A1	Correct money notation
	Additional Guidance		
	Allow £15.20p for A1		

Q	Answer	Mark	Comments
6	**Alternative method 1**		
	1 : 4 seen or implied	M1	
	35 ÷ 5 or 7	M1dep	
	7 and 28	A1	
	Alternative method 2		
	$x + 4x$ (= 35) or $5x$ (= 35)	M1	
	35 ÷ 5 or 7	M1dep	
	7 and 28	A1	
	Additional Guidance		

7(a)	D	B1	
	Additional Guidance		

7(b)	Any correct reflection with mirror line shown	B1	
	Additional Guidance		

Q	Answer	Mark	Comments
8	$\frac{5}{100} \times 1450$ or 72.5	M1	oe 1.05 seen
	1450 + their 72.5 or 1450×1.05 or 1522.5	M1dep	oe
	their 1522.5 ÷ 12 or 126.(875) or 127 or 130×12 or 1560	M1dep	
	126.(875) or 127 or 1560 and 1522.5 and Yes	A1	
	Additional Guidance		
9(a)	19	B1	
	Additional Guidance		
9(b)	+ 7 and × 2	B1	Must be in correct order
	Additional Guidance		
9(c)	$y = \frac{x}{2} + 3$	B1	
	Additional Guidance		
10(a)	Valid reason	B1	eg Total is 99(%) Does not add up to 100(%)
	Additional Guidance		

Q	Answer	Mark	Comments
10(b)	340	B1	
	Additional Guidance		
10(c)	19.5 or 20.5 or 200	M1	
	204	A1	SC1 for 344 or 345 or 454 or 455 or 205
	Additional Guidance		
11(a)	28	B1	
	Additional Guidance		
11(b)	0	B1	
	Additional Guidance		
12	$x = \frac{1}{5}$	B1	
	Additional Guidance		
13	Last three boxes ticked	B3	B2 for three correct and one incorrect or two correct and one incorrect or two correct and none incorrect B1 for three correct and two incorrect or two correct and two incorrect or one correct and none incorrect
	Additional Guidance		

Q	Answer	Mark	Comments
14(a)	18 ÷ 4	M1	
	4.5	A1	oe
	Additional Guidance		
14(b)	Valid criticism	B1	eg One sector not labelled Condone angles missing
	Additional Guidance		
14(c)	Valid comment	B1	eg True statement as 9 hours is half the pie chart and BBC is less than half
	Additional Guidance		
14(d)	$\frac{2}{18} \times 360$ or 40 or states or implies that 18 is a factor of 360	M1	oe
	Not correct and 40 or Not correct and 18 is a factor of 360	A1	oe
	Additional Guidance		

Q	Answer	Mark	Comments
15	$\frac{1}{2} \times 9 \times 5 \times 10$	M1	
	225	A1	
	cm^3	B1	
	Additional Guidance		
16	180 – 85 – 32 or 63	M1	
	(180 – their 63) ÷ 2	M1dep	
	58.5 or $58\frac{1}{2}$	A1	Accept 59 with working shown
	Additional Guidance		
17	1 km = 1000 m or 1m = 100 cm or 1 km = 100 000 cm seen or implied	M1	eg 1200 m 120 000 (cm) 0.06 m 0. 000 06 (km)
	6 : 120 000 or 120 000 ÷ 6	M1dep	oe
	1 : 20 000	A1	
	Additional Guidance		
18(a)	*B* to *C*	B1	
	D to *E*	B1	
	C to *D*	B1	
	B to *C*	B1	
	Additional Guidance		

Q	Answer	Mark	Comments
18(b)	50 (+) 25 (+) 20 (+) 45	M1	Allow one error
	140	A1	
	Additional Guidance		
19(a)	1 hour 30 minutes or 90 (minutes) or 1.5 (hours) seen	B1	oe eg 1:30
	450 ÷ 1.5	M1	their distance ÷ their time
	300	A1	
	Additional Guidance		
19(b)	Faster	B1	
	Valid reason	B1dep	eg Travels further (distance) More distance (so faster)
	Additional Guidance		
20(a)	$13^2 - 5^2$ should be worked out first	B1	oe eg Should be $\sqrt{169-25}$
	12	B1	
	Additional Guidance		

Q	Answer	Mark	Comments
20(b)	States that powers should be added (not multiplied)	B1	oe eg Should be $2 + 2 + 2$
	4^6 or 4096	B1	
	Additional Guidance		
21(a)	9.82×10^2 9.81×10^3 9812	B1	
	Additional Guidance		
21(b)	Any different example correctly evaluated	M1	eg $2 \times 10^3 \times 4 \times 10^2 = 8 \times 10^5$
	Not correct and correct reason or Not correct and counter example	A1	eg Not correct and $4 \times 10^6 \times 3 \times 10^7 = (4 \times 3) \times 10^{(6+7)}$ $= 12 \times 10^{13}$ Not correct and $a \times c$ might be 10 or greater
	Additional Guidance		
22(a)	$(x - 4)(x - 5)$	B2	B1 for $(x - a)(x - b)$ where $ab = 20$ or $a + b = -9$
	Additional Guidance		
22(b)	4 and 5	B1ft	ft their part (a) provided two brackets
	Additional Guidance		

Q	Answer	Mark	Comments
23	$2y - -y = 10 - 13$ or $3y = -3$ or $3x + 6x = 10 + 26$ or $9x = 36$	M1	Eliminates a variable
	$y = -1$ or $x = 4$	A1	
	$y = -1$ and $x = 4$	A1	
	Additional Guidance		

24(a)	$8^2 + 3^2 + 2^2$ or $64 + 9 + 4$ or 77	M1	
	8.77…	A1	
	8.8	B1ft	ft their 3 sf rounded to 2 sf
	Additional Guidance		
	8.8 with no incorrect working		M1A1B1ft
	$\sqrt{78} = 8.8$		M0A0B1ft

24(b)	$2a \times 2a$ or $(2a)^2$ or $4a^2$ seen	M1	
	$9a^2$ or $\sqrt{9a^2}$	M1dep	
	$3a$	A1	
	Additional Guidance		

Q	Answer	Mark	Comments
25	$\frac{120}{360} \times 2 \times \pi \times 4$ or $\frac{120}{360} \times 2 \times \pi \times 5$	M1	oe
	$\frac{120}{360} \times 2 \times \pi \times 4$ and $\frac{120}{360} \times 2 \times \pi \times 5$	M1	oe
	$\frac{120}{360} \times 2 \times \pi \times 5 - \frac{120}{360} \times 2 \times \pi \times 4$ or [8.37, 8.38] or 8.4 and [10.46, 10.48] or 10.5	M1dep	oe
	2.1	A1	
	Additional Guidance		