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# GCSE MATHEMATICS

**New Specimen Papers published June 2015**  
Paper 1 Foundation - Mark Scheme

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8300/1F

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Version 1.0

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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](http://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.

<b>M</b>	Method marks are awarded for a correct method which could lead to a correct answer.
<b>A</b>	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>B</b>	Marks awarded independent of method.
<b>ft</b>	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
<b>SC</b>	Special case. Marks awarded within the scheme for a common misinterpretation which has some mathematical worth.
<b>M dep</b>	A method mark dependent on a previous method mark being awarded.
<b>B dep</b>	A mark that can only be awarded if a previous independent mark has been awarded.
<b>oe</b>	Or equivalent. Accept answers that are equivalent. eg accept 0.5 as well as $\frac{1}{2}$
<b>[a, b]</b>	Accept values between <i>a</i> and <i>b</i> inclusive.
<b>3.14...</b>	Accept answers which begin 3.14 eg 3.14, 3.142, 3.1416
<b>Use of brackets</b>	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.

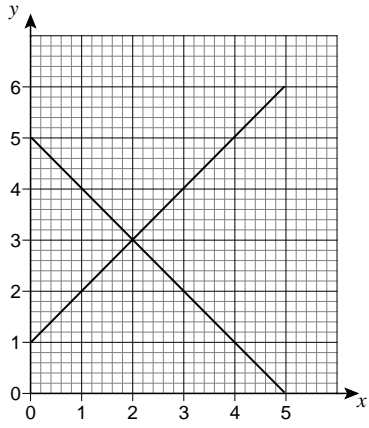
Q	Answer	Mark	Comments
1	370	B1	
2	C	B1	
3	$\frac{15}{35}$	B1	
4	$3a - 6$	B1	
5	$\frac{2}{3}$ or $\frac{40}{60}$ or $0.\dot{6}$	B1	Allow 0.67 or 0.66 or better
	135	B1	
6	<b>Alternative method 1</b>		
	Orders numbers 7.6 9.6 12.4 12.6 15.4 17.4	M1	Smallest to largest or largest to smallest
	7.6 and 17.4 and 9.6 and 15.4 and 12.4 and 12.6	A1	Pairs in any order
	<b>Alternative method 2</b>		
	$(9.6 + 12.6 + 15.4 + 7.6 + 12.4 + 17.4) \div 3$ or 25 or $(9.6 + 12.6 + 15.4 + 7.6 + 12.4 + 17.4) \div 6$ or 12.5	M1	Implied by one correct pair
7.6 and 17.4 and 9.6 and 15.4 and 12.4 and 12.6	A1	Pairs in any order	

Q	Answer	Mark	Comments
7	acute-angled and isosceles	B1	
8	Complete, correct build up method or $0.51 \times 400$	M1	eg $400 \div 2 + 400 \div 100$ oe
	204	A1	
9	$\frac{180}{3000}$ or $\frac{18}{300}$ or 1kg = 1000g seen or implied	B1	oe fraction eg 3000 or 0.18 seen
	$\frac{3}{50}$	B1ft	
10(a)	A and D	B1	
10(b)	No and a number cannot be both odd and even or No and a number cannot be both square and prime or No and a number cannot be two-digit, even and prime	B1	oe Accept eg No and a number cannot be both A and B
10(c)	16 or 36 or 64 and A, D, E or 25 or 49 or 81 and B, D, E or 11 or 13 or 17 or 19 or 23 or 29 or 31 or 37 or 41 or 43 or 47 or 53 or 59 or 61 or 67 or 71 or 73 or 79 or 83 or 89 or 97 and B, C, E	B2	B1 Any of the correct possible numbers (listed for B2) but with incorrect properties or any even square number and A, D or any odd square number and B, D or any prime number $> 2$ and B, C or 2 and A, C

Q	Answer	Mark	Comments
11	<b>Alternative Method 1</b>		
	£2, £2, 20p, 20p, 20p or £2, £2, 50p, 5p, 5p or £2, £1, £1, 50p, 10p	M1	
	£1, £1, 50p, 10p, 10p or £2, 20p, 20p, 20p, 10p or £2, 50p, 10p, 5p, 5p	M1	
	£2, £2, 20p, 20p, 20p, 10p	M1	
	£4.70	A1	Correct money notation
	<b>Alternative Method 2</b>		
	4.60 – 2.70 or 1.90	M1	oe
	£2 and 10p identified	M1	
	£4.60 + 10p or £2.70 + £2	M1	Allow mixed units
	£4.70	A1	Correct money notation
12	$ab$ or $-12$ and $-3, 8$ and $-12$ seen	B2	B1 for $(\frac{b}{a} =) -3$ or $(a - b =) 8$ or $(ab =) -12$
13(a)	28	B1	
13(b)	6	B1	
14	The perimeter of $R$ is the same as the perimeter of $L$	B1	

Q	Answer	Mark	Comments
15	720 ÷ 30 or 0.72 ÷ 0.03 or 24	M1	
	their 24 × 2	M1dep	
	48 and No	A1	

16	<b>Alternative Method 1</b>		
	24.5 ÷ 7 or 3.5(0)	M1	
	63 – 24.5 or 38.5	M1	
	their 38.5 ÷ their 3.5	M1	
	11	A1	
	<b>Alternative Method 2</b>		
	24.5 ÷ 7 or 3.5(0)	M1	
	63 ÷ their 3.5 or 18	M1	
	their 18 – 7	M1	
	11	A1	
	<b>Alternative Method 3</b>		
	63 ÷ 24.5 or $\frac{18}{7}$	M1	oe
	7 × their $\frac{18}{7}$ or 18	M1	
	their 18 – 7	M1	
	11	A1	

Q	Answer	Mark	Comments
17(a)	Straight line through (0, 1), (1, 2), (2, 3), (3, 4), (4, 5) and (5, 6) 	B2	B1 Two correct points plotted
17(b)	$x = 2$ and $y = 3$	B1ft	ft their linear graph from (a)
18	Three different valid criticisms: no key Friday's drink bar is wrong / Friday should reach £70 Saturday's bars are the wrong way round / Thursday's and Friday's bars are the wrong way round	B3	oe B1 for each
19	$345 - 96$ or 249	M1	
	$80 \div 10 \times 3$ or 24	M1	oe
	their $249 \div$ their 24 or their $24 \times 10$ or their $24 \times 11$	M1	Condone $345 \div 24$
	11	A1	
20(a)	41 or 29 used	M1	
	12	A1	
20(b)	59 or 50 used	M1	
	109	A1	



Q	Answer	Mark	Comments
21(a)	0.0048	B1	
21(b)	0.000 012	B1	
21(c)	$2.5 \times 10^6$	B1	
22(a)	mode = 8	B1	May be implied from answer $\frac{8}{27}$
	$2 + 3 + 6 + 7 + 9$ or 27	M1	Allow one error or omission if working shown
	$\frac{9}{27}$ or $\frac{1}{3}$	A1ft	oe ft their mode
22(b)	$8 - 4$ or 4 or $8 - 3$ or 5	M1	
	Range of 3A is smaller and 4 and 5	A1	SC1 4 to 8 and 3 to 8 seen oe
22(c)	$\frac{29+1}{2}$ or 15th value identified	M1	
	6	A1	
23	$3 \times 1 - 1^3 = 3 - 1$ $= 2$ and correct	B1	Condone No, they should be 1 and -2 for B1B1 SC1 $w = -2$
	$3 \times (-1) - (-1)^3 = -3 + 1$ $= -2$ and incorrect	B1	
24	$\pi \times 8^2 (\div 2)$	M1	oe
	$32\pi$	A1	

Q	Answer	Mark	Comments
25	$\frac{11}{4} \times \frac{12}{7}$	M1	Converts both fractions to improper with at least one correct
	$\frac{\text{their } 11 \times \text{their } 12}{\text{their } 4 \times \text{their } 7}$ or $\frac{132}{28}$ or $4\frac{20}{28}$ or $\frac{33}{7}$	M1dep	oe fraction
	$4\frac{5}{7}$	A1	
26	$5x - 3x > 11 + 2$ or $2x > 13$	M1	
	$x > 6.5$	A1	oe SC1 6.5
27	Lists at least three terms from first sequence between 20 and 40	M1	eg 21, 23, 25, ...
	Lists at least three terms from second sequence between 20 and 40	M1	eg 20, 23, 26, ...
	23 29 35	A1	SC2 for any two correct with at most one incorrect SC1 for any one correct with at most two incorrect

Q	Answer	Mark	Comments
<b>28</b>	<b>Alternative method 1</b>		
	$18 \div (3 + 2)$ or 3.6	M1	
	their $3.6 \times 3 \times 2.8(0)$ or 30.24(0)	M1dep	
	their $3.6 \times 2 \times 3.5(0)$ or 25.2(0)	M1dep	dep on first M1
	55.44	A1	
	<b>Alternative method 2</b>		
	$3 \times 2.8(0) + 2 \times 3.5(0)$ or 15.4(0)	M1	
	$18 \div (3 + 2)$ or 3.6	M1	
	their $3.6 \times$ their 15.4(0)	M1dep	dep on M1 M1
	55.44	A1	
	<b>Alternative method 3</b>		
	$3 \times 2.8(0) + 2 \times 3.5(0)$ or 15.4(0)	M1	
	their $15.4(0) \div 5$ or 3.08	M1dep	
	their $3.08 \times 18$	M1dep	
	55.44	A1	
<b>29(a)</b>	0.64	B1	
<b>29(b)</b>	$\frac{x}{4} = \cos 50^\circ$ or $\frac{x}{4} =$ their 0.64 or $4 \times$ their 0.64	M1	oe their 0.64 from (a)
	2.6	A1ft	oe ft their 0.64 from (a)

Q	Answer	Mark	Comments
30	<b>Alternative method 1</b>		
	$(x + 3)^2$	M1	oe
	$x^2 + 3x + 3x + 9$	A1	oe
	$3 \times (x + 3)$	M1	oe
	$x^2 + 3x + 3x + 9 + 3x + 9 + 9$ $= x^2 + 9x + 27$	A1	
	<b>Alternative method 2</b>		
	$(x + 6)(x + 3)$	M1	oe
	$x^2 + 6x + 3x + 18$	A1	oe
	their $(x^2 + 6x + 3x + 18) + 3 \times 3$	M1	oe
	$x^2 + 6x + 3x + 18 + 9$ $= x^2 + 9x + 27$	A1	
	<b>Alternative method 3</b>		
	$(x + 3)^2$	M1	oe
	$x^2 + 3x + 3x + 9$	A1	oe
	$3 \times (x + 6)$	M1	oe
	$x^2 + 3x + 3x + 9 + 3x + 18$ $= x^2 + 9x + 27$	A1	
	<b>Alternative method 4</b>		
	$(x + 6)^2$	M1	oe
	$x^2 + 6x + 6x + 36$	A1	oe
	$3 \times (x + 3)$	M1	oe
	$x^2 + 6x + 6x + 36 - 3x - 9$ $= x^2 + 9x + 27$	A1	





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SP/02/15