

OXFORD

INTERNATIONAL
AQA EXAMINATIONS

INTERNATIONAL GCSE

MATHEMATICS

(9260)

PAPER 2 – Core Tier
Mark Scheme

Specimen 2018

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.

Glossary for Mark Schemes

International GCSE examinations are marked in such a way as to award positive achievement wherever possible. Thus, for International 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 <i>a</i> and <i>b</i> inclusive.
3.14...	Accept 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	$3a + 6$	B1	
2	$a \div b$	B1	
3	D	B1	
4	27	B1	
5(a)	35	B1	
5(b)	$15x + 12y$ or $12y + 15x$	B2	B2 $3(5x + 4y)$ or $3(4y + 5x)$ B1 $15x$ or $12y$ or $15 \times x + 12 \times y$ or $12 \times y + 15 \times x$
5(c)	$2x + y^2$ or $y^2 + 2x$	B2	B1 $2x$ or y^2
6(a)	90	B1	
6(b)	$2 \times 45 (= 90)$ or $3 \times 12 (= 36)$	M1	oe eg $45 (+) 45$ or $12 (+) 12 (+) 12$ or $57 (+) 57$ or their (a) + 3×12
	$45 + 45 + 12 + 12 + 12 = 126$	B1	oe
6(c)	45	B1	
	$45 - 12$	M1	oe eg $\frac{\text{their } 90 - 2 \times 12}{2}$
	33	A1ft	ft their x from (a) for 90
	Additional guidance		
Condone length and width reversed			

Q	Answer	Mark	Comments
7	7500 – 1875 or 5625	M1	
	their 5625 ÷ 36	M1	
	156.25	A1	
8	[8.4, 8.8] (× 2.5)	M1	
	[21, 22]	A1	SC1 Any given length in cm correctly multiplied by 2.5
9(a)	1000 ÷ 42 or 23.8(...) or $23\frac{7}{21}$ or $\frac{500}{21}$	M1	
	23	A1	
9(b)	34	B1ft	ft their answer to (a)
10	1.76	B1	
	138 ÷ 2.2 or [62.7, 62.73] or 62	M1	
	63	A1	SC1 correct rounding of their decimal kg

Q	Answer	Mark	Comments
11(a)	Alternative method 1		
	$35 \div 5 = 7$	M1	
	their $7 \div 2$ or 3.5 or 3	M1	
	10	A1	SC2 10.5
	Alternative method 2		
	£10 for 3	M1	
	£30 for 9	M1	
	10	A1	SC2 10.5
11(b)	$5 + 3.5 + 2 + 2.5$ or 13	M1	oe Allow one error
	$260 \div$ their 13 or 20	M1	
	their 20×2.5	M1dep	oe dependent on 2nd method mark
	50	A1	
12	Alternative method 1		
	$100 \div 40$ or 2.5 or $354 \div 40$ or 8.85	M1	Digits 885 imply M1
	885	A1	
	Alternative method 2		
	Any correct values using a suitable scaling eg $\div 2 \rightarrow 20$ and 177 $\div 4 \rightarrow 10$ and 88.5 $\times 5 \rightarrow 200$ and 1770	M1	
	885	A1	

Q	Answer	Mark	Comments
13	False with valid reason	B1	eg False It is $a \times b$ False The answer is 15
	False with valid reason	B1	eg False 5 squared is 25 then you double False The answer is 50
14(a)	$\frac{3}{10}$ or 0.3 or 30%	B1	
14(b)	strong positive	B1	
14(c)	Straight ruled line of best fit	B1	Through (30, 1) to (35, 1) and (60, 6) to (65, 6)
	4	B1	
14(d)	Refers to danger when extrapolating outside the range of the data given or Refers to difficulty of interpolation at certain points eg 35 lessons suggests 1 or 2 tests	B1	oe eg line of best fit might not continue eg 20 lessons suggests 0 tests
15	The perimeter of R is the same as the perimeter of L	B1	
16(b)	$12 + \frac{27}{4} \times 6$ or 52.5(0)	M1	
	7.50	A1	Must be correct money notation
16(c)	$a = 9$	B1	
	Substitutes a correct pair of values for n and C into $C = \text{their } 9 + b(n - 1)$ or method for gradient eg $\frac{41 - 9}{5 - 1}$	M1	oe
	$b = 8$	A1	

Q	Answer	Mark	Comments
17	$-7 \leq x < 6$	B1	
18	60	B1	
19	252°	B1	

20	Alternative method 1		
	$\angle PCB = 180 - 90 - 15$ or 75° or $\angle PCB = 90 - 15$	M1	oe Angle may be seen on diagram
	$\angle ABC = \angle PCB = \text{their } 75$ and $\angle BCD = 180 - \text{their } 75$ or 105°	M1	oe Angle may be seen on diagram
	$x = 105 - 75 = 30^\circ$	A1	Full method required
	Alternative method 2		
	$\angle PCB = 180 - 90 - 15$ or 75° or $\angle PCB = 90 - 15$	M1	oe Angle may be seen on diagram
	$\angle ABC = \angle PCB = \text{their } 75$ and $\angle ABP = \text{their } 75 - 15$ or 60° and $\angle BAC = 180 - 90 - \text{their } 60$	M1	oe Angles may be seen on diagram
	$x = \angle BAC = 30^\circ$	A1	Full method required
	Alternative method 3		
	$\angle PCB = 180 - 90 - 15$ or 75° or $\angle PCB = 90 - 15$	M1	oe Angle may be seen on diagram
	$\angle ABC = \angle PCB = \text{their } 75$ and $\angle BAC = 180 - \text{their } 75 - \text{their } 75$	M1	oe Angle may be seen on diagram
	$x = \angle BAC = 30^\circ$	A1	Full method required

Q	Answer	Mark	Comments
21	2.5×10^6	B1	
22	Alternative method 1		
	$\frac{3}{5} + \frac{1}{6}$ or $\frac{23}{30}$	M1	
	1 – their $\frac{23}{30}$ or $\frac{7}{30}$	M1dep	
	56 ÷ their $\frac{7}{30}$ or 56×30 or 1680 or $56 \div 7$ or 8 or 240	M1dep	oe
	(240 ÷ 6 =) 40	A1	
	Alternative method 2		
	$1 - \frac{1}{6}$ or $\frac{5}{6}$	M1	
	Their $\frac{5}{6} - \frac{3}{5}$ or $\frac{7}{30}$	M1dep	
	56 ÷ their $\frac{7}{30}$ or 56×30 or 1680 or $56 \div 7$ or 8 or 240	M1dep	oe
(240 ÷ 6 =) 40	A1		
23(a)	0.3 or $\frac{3}{10}$ or 30%	B1	oe
23(b)	0.11 or $\frac{11}{100}$ or 11%	B1	oe
23(c)	200×0.15 or $\frac{30}{200}$	M1	oe
	30	A1	

Q	Answer	Mark	Comments
24	$(2x + 3y = 15.5)$ $2x + 2y = 12$	$(2x + 3y = 15.5)$ $3x + 3y = 18$	M1 Equates coefficients
	$y = 3.5$ or $x = 2.5$		A1 oe
	$x = 2.5$ and $y = 3.5$		A1
25	Intersecting arcs on both sides of line joining sockets, of same radius centred on each socket		M1
	Perpendicular bisector of sockets within tolerance (at least 3 cm long)		A1 Tolerance is ± 1 mm through their intersecting arcs
	Point marked on wall 2 cm from doors on either side		B1
	Socket marked on bottom wall where their perpendicular bisector does intersect the wall		A1 The mark is for showing that the socket can only be fitted on the bottom wall. If both positions marked then A0
26	Alternative method 1		
	60×0.5 or 30	M1	oe
	$(100 - 60) \times 0.2$ or 8	M1	oe
	38	A1	SC2 0.38
	Alternative method 2		
	Implies boys are 40% and works out 50% of their girl total	M1	eg 60 and 40 seen and $\frac{1}{2} \times 60 = 30$ or 120 and 80 seen and $\frac{1}{2} \times 120 = 60$
	Works out 20% of their boy total	M1dep	eg 0.2×40 or 8 or 0.2×80 or 16
	38	A1	oe

Q	Answer	Mark	Comments
27	$(x + a)(x + b)$ with $ab = 4$ or $a + b = -5$	M1	
	$(x - 1)(x - 4)$	A1	Either order
	1 and 4	A1ft	ft if M1 A0
28(a)	$\cos x = \frac{8}{11}$ or $\sin x = \frac{\sqrt{11^2 - 8^2}}{11}$ or $\tan x = \frac{\sqrt{11^2 - 8^2}}{8}$	M1	oe
	43(.3....)	A1	
28(b)	$\tan 40 = \frac{y}{37}$ or $\tan 50 = \frac{37}{y}$	M1	oe $x = 48.3\dots$ and $37^2 + y^2 = 48.3^2$ $48.3 \cos 50$ or $48.3 \sin 40$
	31.(...)	A1	