

OXFORD

INTERNATIONAL
AQA EXAMINATIONS

INTERNATIONAL GCSE

MATHEMATICS

(9260)

PAPER 1 – 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.

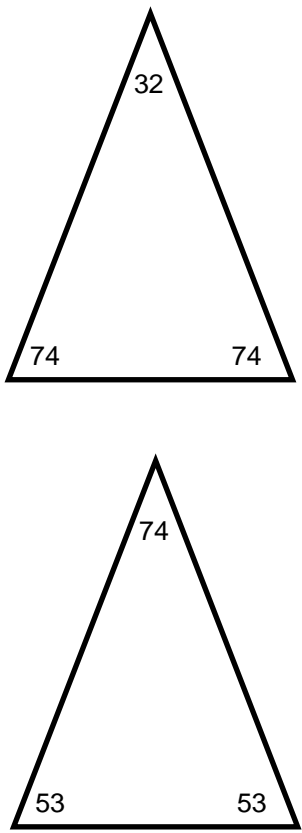
Premature approximation

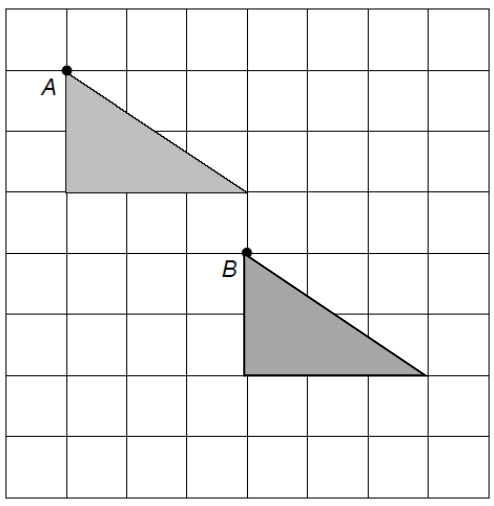
Rounding off too early can lead to inaccuracy in the final answer. This should be penalised by 1 mark unless instructed otherwise.

Q	Answer	Mark	Comments																
1	2500	B1																	
2(a)	9	B1																	
2(b)	6	B1																	
3	35%	B1																	
4	<table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td>2</td> <td>4</td> <td>11</td> <td>8</td> </tr> <tr> <td>12</td> <td style="background-color: black;"></td> <td style="background-color: black;"></td> <td>9</td> </tr> <tr> <td>6</td> <td style="background-color: black;"></td> <td style="background-color: black;"></td> <td>1</td> </tr> <tr> <td>5</td> <td>10</td> <td>3</td> <td>7</td> </tr> </tbody> </table> <p>4, 11 in either order 1, 9 in either order</p>	2	4	11	8	12			9	6			1	5	10	3	7		<p>B2 for two or three sides adding to 25 using the numbers 1, 4, 5, 9, 10, 11</p> <p>B1 for one side adds to 25 using the numbers 1, 4, 5, 9, 10, 11</p> <p>All numbers on sides qualifying for marks must be different</p>
2	4	11	8																
12			9																
6			1																
5	10	3	7																
5(a)	28	B1																	
5(b)	Monday	B1																	
5(c)	Both bars at correct height and width	B3	<p>B2 for one bar at correct height and width or both correct heights but with width incorrect or both bars correct but reversed.</p> <p>B1 for $(43 - 3) \div 2$ or 20 or 23 seen or 2 bars drawn with heights total 43 or 2 bars drawn with 10B 3 higher than 10A</p>																
6(a)	Circles 'certain'	B1	Any indication																
6(b)	All even numbers, three of which are multiples of 10	B2	<p>B1 All even numbers</p> <p>B1 three multiples of 10 and one odd number or blank</p> <p>Numbers may be repeated</p>																

Q	Answer	Mark	Comments
7	(-2, 3) and (2, 1)	B2	B1 (-2, 3) or (2, 1) or (-2, 3) and (2, 1) correctly plotted SC1 (3, -2) and (5, 2) or (-5, 2) and (-3, 6)
8	$156 \div 3$ or 52	M1	oe
	$180 \div 4$ or 45	M1	oe
	their 52 + their 45 or 97	M1dep	dependent on at least M1
	$\frac{97}{336}$	A1	SC3 $\frac{99}{336}$ or $\frac{33}{112}$
9(a)	350	B1	
9(b)	10	B1ft	ft their $350 \div 35$ oe
9(c)	Horizontal axis labelled 40, 45, (50)	B1	45 must be in correct place
	Vertical axis labelled 400, 450, 500, 550, (600)	B1	550 must be in correct place
	Straight line from (35, 350) to (45, 550)	B2	B1 40h \rightarrow \$450 shown on working or on grid or 45h \rightarrow \$550 shown in working or on grid or (\$) 200 Ignore graph beyond 45 hours

Q	Answer	Mark	Comments
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10		B3	<p>B2 for 1 correct triangle.</p> <p>B1 for a triangle with 74° and 2 other equal angles not totalling 180°</p> <p>B1 for a triangle with $2 \times 74^\circ$ and 1 other angle not totalling 180°</p>
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11(a)	<p>Correct translation drawn</p> 	B1	
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Q	Answer	Mark	Comments
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11(b)	Correct rotation drawn	B2	B1 for correct rotation but incorrect position on grid.

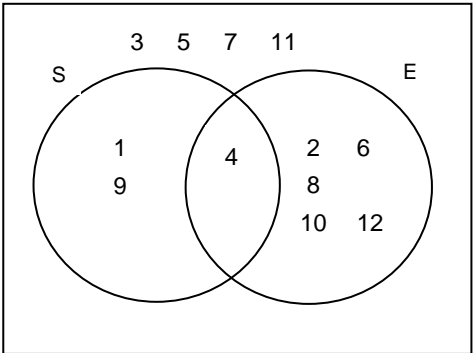
12	Alternative method 1		
	30 – 13 or 17 or 30 – 8 or 22	M1	
	(30 – 8) ÷ 2 22 ÷ 2 or 11	M1dep	
	6	A1	
	Alternative method 2		
	Correctly subtract a total of 8 passengers from 13 and 17	M1	eg subtracting 5 male and 3 female gives 8 and 14
	Correctly complete another trial	M1	eg subtracting 3 male and 5 female gives 10 and 12
6	A1		

13	$m = p - 5$	B1	
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14	$x(x^2 + 6)$	B1	
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Q	Answer	Mark	Comments
15(a)	18	B1	
15(b)	2	B1	
15(c)	Evidence of trying any number between 18 and their 15(b)	M1	
	2.4	A1	
	Alternative method 2		
	$6x - 12 = x$	M1	
	2.4	A1	
16	30 minutes or $\frac{1}{2}$ hour	B1	oe
	56 (miles)	B1	
17	Works out values for length and width that give a perimeter of 32 or an area of 48	M1	$xy = 48$ or $x + y = 16$ (oe)
	M awarded and perimeter calculated using $4 \times$ their length + $2 \times$ their width or $4 \times$ their width + $2 \times$ their length	M1	Working must be clear and complete method
	Width = 4 cm length = 12 cm	A1	$x^2 - 16x + 48 = 0$ (oe) Must be a quadratic
	56 or 40	A1	

Q	Answer	Mark	Comments
18	300 ÷ 6 (= 50) or 120 × 6 (= 720)	M1	$\frac{1}{6}$ oe and $\frac{120}{300} = \left(\frac{2.4}{6}\right)$
	No and 50 or No and 36 (average of the other numbers) or No and 720	A1	No and any sensible comment linking the theoretical probability and experimental outcome with accurate calculation(s) SC1 States or implies that 120 is too large a proportion
19	$(x - 4)(x + 8) = 0$	B1	
20	$5x + 20$ and $3x + 21 (+ 2)$	B1	
	$5x - 3x$ or $2x$ or $21 + 2 - 20$ or $23 - 20$	M1	their $21 + 2 -$ their 20 or their $23 -$ their 20
	$5x - 3x = 21 + 2 - 20$ or $5x - 3x = 23 - 20$ or $2x = 3$	M1dep	$5x - 3x =$ their $23 -$ their 20
	1.5	A1ft	oe
21(a)	Correct product using at least one prime factor	M1	For example $2 (\times) 126$ or $3 (\times) 84$ or $7 (\times) 36$ or $2 (\times) 2 (\times) 63$ or $2 (\times) 3 (\times) 42$ May be implied eg in a factor tree or repeated division
	$2 \times 2 \times 3 \times 3 \times 7$ or $2^2 \times 3^2 \times 7$	A1	
21(b)	84	B1	
22	-1 and 2.5	B2	B1 for each

Q	Answer	Mark	Comments
23	$73^2 \pm 48^2$ (5329 \pm 2304) (7633 or 3025)	M1	$x^2 + 482 = 732$
	$73^2 - 48^2$ or $5329 - 2304$ or $x^2 + 48^2 = 73^2$ or $x^2 + 2304 = 5329$ or $\sqrt{3025}$ or $55^2 = 3025$	M1	
	55	A1	
24(a)		B3	B2 Any 2 or 3 of the 4 sections correct B1 Any 1 of the 4 sections correct
24(b)	$\frac{1}{12}$	B1ft	oe ft their Venn diagram

Q	Answer	Mark	Comments
25	$\pi \times 40^2 \times 150$	M1	753982 or 240000π [753600, 754080]
	their 753982 \div 1000 or their 753982 \div 1000 \div 0.2	M1	753.982 or 240π [753.600, 754.080] 3770 [3768, 3770.4]
	their 3770 \div 60 (\div 60) or $(60 \times 60 =)$ 3600 or $0.2 \times 60 \times 60$ or 720	M1dep	62.83... or 1.04... [62.8, 62.84] or [1.04, 1.05]
	[62.8, 62.84] and Yes or [1.04, 1.05] and Yes or 3600 and 3770 and Yes or 753.9 and 720 and Yes	A1	oe
26(a)	375.112(1656)	B1	Condone if correctly rounded to 7 significant figures or better eg 375.1122
26(b)	20^2 or 400 or $\sqrt[3]{1000}$ or 10 or 5	M1	
	$400 - 10 \div 5 = 398$ or $400 - 2 = 398$	A1	
27	$a = 6$	B1	Allow $6x$
	$b = 100$	B1	SC1 If values reversed $y = 6x + 100$ seen in script with no contradictory answers for a and b given allow B2

Q	Answer	Mark	Comments
28	Alternative method 1		
	$20 \div (3 + 2)$ or 4	M1	
	their $4 \times 3 \times 2.8(0)$ or 33.6(0)	M1dep	
	their $4 \times 2 \times 3.5(0)$ or 28(.00) or 61.6	M1dep	dep on first M1
	61.60	A1	
	Alternative method 2		
	$3 \times 2.8(0) + 2 \times 3.5(0)$ or 15.4(0)	M1	
	$20 \div (3 + 2)$ or 4	M1	
	their $4 \times$ their 15.4(0) or 61.6	M1dep	dep on M1 M1
	61.60	A1	