
MATHEMATICS

1112/01

Paper 1

April 2017

MARK SCHEME

Maximum Mark: 50

IMPORTANT NOTICE

Mark Schemes have been issued on the basis of **one** copy per Assistant examiner and two copies per Team Leader.

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Markers were instructed to award marks. It does not indicate the details of the discussions that took place at an Markers' meeting before marking began, which would have considered the acceptability of alternative answers.

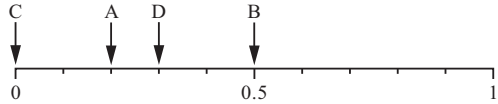
Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

This document consists of **10** printed pages.

Mark scheme annotations and abbreviations

M1	method mark
A1	accuracy mark
B1	independent mark
FT	follow through after error
dep	dependent
oe	or equivalent
cao	correct answer only
isw	ignore subsequent working
soi	seen or implied

Question	Answer	Marks	Further Information
1(a)	63 (°)	1	
1(b)	117 (°)	1	Follow through: 180 – answer to (a)
1(c)	63 (°)	1	Follow through: = answer to (a) or 180 – (b)
Question	Answer	Marks	Further Information
2	2t (or $2 \times t$ or $t \times 2$ or $t + t$) $t - 10$ (Oliver takes) half as long (as Mia)	3	
	Two correct answers.	B2	
	One correct answer.	B1	Only award if B2 not awarded.
Question	Answer	Marks	Further Information
3		2	
	One labeled arrow correctly placed.	B1	
Question	Answer	Marks	Further Information
4	<input type="text" value="1.6 m"/> <input type="text" value="132 cm"/> <input type="text" value="1 m 20 cm"/> <input type="text" value="1.15 m"/> <input type="text" value="1 m 6 cm"/> <input type="text" value="86 cm"/>	1	

Question	Answer	Marks	Further Information						
5(a)	5 and 3	1	Must be correct order.						
5(b)	20–24 bar drawn to height 10 and 25–29 bar drawn to height 5 or <i>their</i> height for 25–29	1	The bars should have gaps between them. Follow through <i>their</i> 5						
5(c)	Ticks 'Yes' and gives a correct explanation e.g. <ul style="list-style-type: none"> The modal interval was 15–19 on both days. The tallest bar was 15–19 on Mondays and Tuesdays. Both graphs peaked in the same place. 	1	Do not accept an explanation that refers to just one graph, e.g. On Tuesdays the most common interval was 15–19						
Question	Answer	Marks	Further Information						
6(a)	$x + 5 = 0$ $x = 5$ $y = 5$ $y = 5x$	1	Accept any clear indication of the answer.						
6(b)	$y = 7$ or equivalent	1							
6(c)	<table style="border: none; margin: auto;"> <tr> <td style="border: 1px solid black; width: 30px; height: 30px; text-align: center; vertical-align: middle;">✓</td> <td style="border: 1px solid black; width: 30px; height: 30px; text-align: center; vertical-align: middle;"></td> </tr> <tr> <td style="border: 1px solid black; width: 30px; height: 30px; text-align: center; vertical-align: middle;"></td> <td style="border: 1px solid black; width: 30px; height: 30px; text-align: center; vertical-align: middle;">✓</td> </tr> <tr> <td style="border: 1px solid black; width: 30px; height: 30px; text-align: center; vertical-align: middle;">✓</td> <td style="border: 1px solid black; width: 30px; height: 30px; text-align: center; vertical-align: middle;"></td> </tr> </table>	✓			✓	✓		1	All correct for 1 mark. Accept any unambiguous indication of the answer.
✓									
	✓								
✓									
Question	Answer	Marks	Further Information						
7	73	1							

Question	Answer	Marks	Further Information
8(a)	0.4	1	
8(b)	Any correct integers to make a fraction that lies between $\frac{2}{5}$ and $\frac{1}{2}$ (i.e. between $\frac{40}{100}$ and $\frac{50}{100}$)	1	e.g. $\frac{4}{9}, \frac{41}{100}, \frac{3}{7}, \frac{9}{20}, \frac{45}{100}, \frac{7}{15}, \frac{5}{12}$

Question	Answer	Marks	Further Information
9	21.676	1	

Question	Answer	Marks	Further Information
10(a)	11.316	1	
10(b)	2.76	1	
10(c)	113.16	1	

Question	Answer	Marks	Further Information
11	(\$) 4.08	1	

Question	Answer	Marks	Further Information
12(a)	30 (minutes)	1	
12(b)	Safia and 12	1	
12(c)	The lines for Safia are steeper.	1	There must be a comment relating to steepness of the line or speed. Accept 'her line is steeper'. Accept calculations or comparisons of speed.

Question	Answer	Marks	Further Information
13	$x=3$ $y=2$	2	
	x or y correct or $2 \times 2 \times 2 \times 3 \times 3 \times 5$ seen or implied by e.g. tree diagram, repeated division.	B1	

Question	Answer	Marks	Further Information																																																	
14	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr> <tr><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>1</td><td>2</td></tr> <tr><td>3</td><td>2</td><td>1</td><td>0</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>2</td><td>1</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>1</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr> <tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr> </table>	6	5	4	3	2	1	0	5	4	3	2	1	0	1	4	3	2	1	0	1	2	3	2	1	0	1	2	3	2	1	0	1	2	3	4	1	0	1	2	3	4	5		1	2	3	4	5	6	1	
6	5	4	3	2	1	0																																														
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1	0	1	2	3	4	5																																														
	1	2	3	4	5	6																																														

Question	Answer	Marks	Further Information
15(a)	250	1	Allow 2.5×10^2
15(b)	2.5	1	Allow 2.5×10^0

Question	Answer	Marks	Further Information
16	(\$)2.96	2	
	<p>An answer containing the digits 296 but with an incorrectly positioned decimal point. or a complete correct method with at most one numerical error e.g.</p> $\begin{array}{r} 1 \quad 8 \quad 5 \\ \times \quad 1 \quad 6 \\ \hline 1 \quad \mathbf{0} \quad 1 \quad 0 \\ 1 \quad 8 \quad 5 \quad 0 \\ \hline 2 \quad 8 \quad 6 \quad 0 \end{array}$	M1	

Question	Answer	Marks	Further Information
17	(-1, 3)	2	
	<p>One correct coordinate or correct method for both coordinates or (3, -1)</p>	M1	

Question	Answer	Marks	Further Information
18	$\frac{3}{4}$ and $\frac{8}{9}$ in correct order	2	Allow equivalent fractions.
	One correct fraction.	B1	
Question	Answer	Marks	Further Information
19		2	
	3 coordinates are plotted in correct places or the image is the correct size and shape but incorrectly positioned.	B1	

Question	Answer	Marks	Further Information
20		2	
	At least three correct.	B1	
Question	Answer	Marks	Further Information
21	7	3	
	Complete correct method with at most one arithmetic or conversion error.	M2	
	<p>either for finding that one packet makes 3 litres of paint or for calculating that 20 litres of paint requires 4 kg of paint powder</p> <p>sight of $6\frac{2}{3}$ or 6.6... or 6 r4</p>	B2	Only award if M2 not awarded.
	A correct conversion between g/kg or ml/l	B1	Only award if neither M2 nor B2 awarded.

Question	Answer	Marks	Further Information									
22(a)	(Reflection in the line) $y = x$	1	Do not accept just a line on the diagram. Combinations of transformations scores zero									
22(b)	90° clockwise or 270° anticlockwise and (3,3) or 90° anticlockwise or 270° clockwise and (6,6)	2	Combinations of transformations scores zero.									
	Either part correct	B1										
Question	Answer	Marks	Further Information									
23	42×0.17 $42 \div 0.18$ $42 \times \frac{3}{11}$ $42 \div \frac{5}{8}$	1	Both answers needed.									
Question	Answer	Marks	Further Information									
24	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">×</td> <td style="text-align: center;">1.2</td> <td style="text-align: center;">0.25</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">4.8</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">1.2</td> <td style="text-align: center;">1.44</td> <td style="text-align: center;">0.3</td> </tr> </table>	×	1.2	0.25	4	4.8	1	1.2	1.44	0.3	2	Allow equivalent fractions.
×	1.2	0.25										
4	4.8	1										
1.2	1.44	0.3										
	Two correct, allowing a follow through if 'their 1.2' × 1.2 is correctly evaluated in place of the 1.44	B1										