Cambridge Secondary 1 Checkpoint

Cambridge Assessment International Education
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MATHEMATICS **1112/01**

Paper 1 **October 2019**

MARK SCHEME

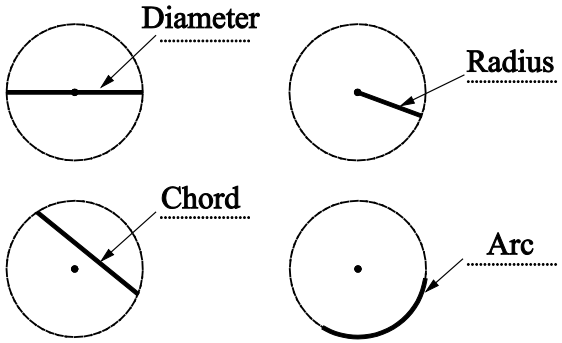
Maximum Mark: 50

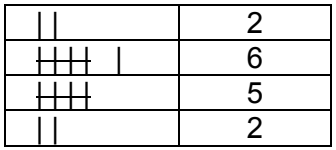
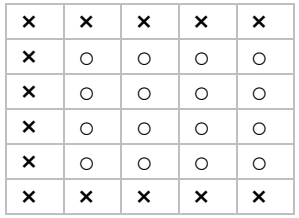
Published

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 End of Series Report. Cambridge will not enter into discussions about these mark schemes.

This document consists of **8** printed pages and **0** blank pages.

Question	Answer	Mark	Further Information
1		**1**	Condone incorrect spelling.
2	5	**1**	
3	30	**1**	
4(a)	$\frac{2}{3}$ oe	**1**	
4(b)	1	**1**	
5(a)	3 (hours) 25 (minutes)	**1**	
5(b)	36 (km/h)	**1**	
6(a)	151.2	**1**	
6(b)	1.46 or $\frac{73}{50}$ or $1\frac{23}{50}$	**1**	

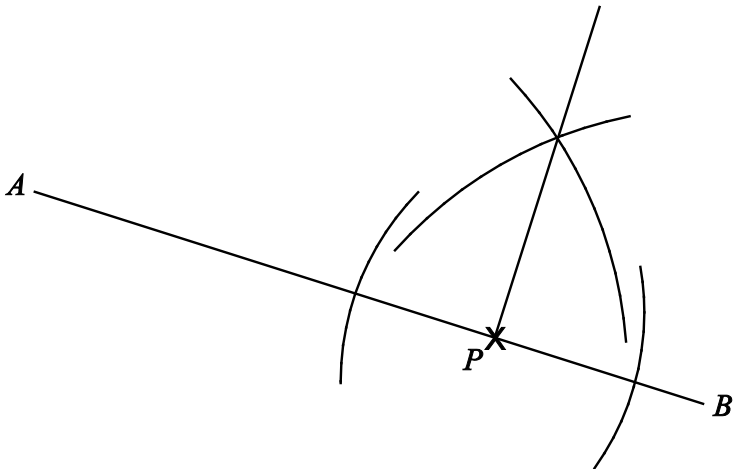
Question	Answer	Mark	Further Information
7(a)	30 (≤ *L* <) 40 **and** 40 (≤ *L* <) 50	**1**	
7(b)		**2**	Allow 2 mark follow through provided the intervals are exhaustive (there are no gaps). For full marks tallies must show correct use of gate.
	All frequencies are correct. **or** two rows of the table are completely correct.	**B1**	Allow B1 follow through provided the intervals are exhaustive (there are no gaps). For B1 tallies must show correct use of gate.
8(a)		**1**	
8(b)	Identifies pattern as square numbers e.g. • the 5th diagram will have 5 rows of circles with 5 in each row • it is 5 squared • it is 5 × 5 **or** Explains that the differences are the sequence of odd numbers ('odd numbers' can be implied by two differences correctly used) e.g. • The differences are 3, 5, 7, 9 • 9 is the next odd number, and 16 + 9 (= 25) • 9 + 7 = 16 and 16 + 9 = 25	**1**	Also accept e.g. • the 5th square number is 25 • the next square number is 25 • the differences go up in odd numbers • the sequence is 1, 4, 9, 16, 25 • the nth term is n^2 • because they are square numbers Do not accept on their own e.g. • the next term is 25 • it's 9 more • 16 + 9 • 5^2

Question	Answer	Mark	Further Information
8(c)	$3n + 2$ oe	**2**	Accept $3 \times n + 2$
	$3n + c$ oe	**B1**	
9	True ☐ False ☑ True ☐ False ☑ True ☑ False ☐	**1**	Accept any unambiguous indication.
10(a)	$\frac{3}{4}$	**1**	Allow correct equivalent fraction. Do **not** allow percentage or decimal.
10(b)	8	**1**	
11	$6\frac{7}{15}$ cao	**3**	
	$5\frac{22}{15}, \frac{97}{15}$ or $1\frac{7}{15}$ seen	**B2**	
	A fully correct method with at most one arithmetic error.	**M2**	**Only** if B2 not scored.
	Correct use of common denominators, e.g. $(2)\frac{12}{15} + (3)\frac{10}{15}$, $\frac{42}{15} + \frac{55}{15}$	**M1**	**Only** if B2 or M2 not scored.

Question	Answer	Mark	Further Information
12	× × ÷ ÷	**2**	
	3 correct signs.	**B1**	
13	$\frac{6}{13}$ cao	**1**	
14	$x^2 - x - 30$ final answer	**2**	
	three correct from x^2, $-6x$, $5x$, -30	**B1**	Could be shown in a grid $-x$ implies 2 terms correct
15(a)	32 (seconds)	**1**	
15(b)	51 (seconds)	**1**	
15(c)	Ticks incorrect **and** gives a correct reason, e.g. • range is smaller in January / greater in June • range has increased (in June) • 55 > their 51	**1**	Strict follow through from answer to (**b**) i.e. if (**b**) ≥ 55 **must** tick correct and give converse comment. Do not allow just stating ranges without comparison. Ignore comments about the medians.
16(a)	(4, 3)	**2**	
	4 or 3 correct.	**B1**	
16(b)	(1, −12)	**2**	
	1 or −12 correct.	**B1**	

Question	Answer	Mark	Further Information
17(a)	−1, 0 and 7	**1**	In any order
17(b)	$x < 1$ or $1 > x$	**1**	Do **not** allow $x \leq 1$ or $x > 1$
18(a)	<table><tr><td>0.04</td><td>0.039</td></tr><tr><td>3.02</td><td>3.0</td></tr></table>	**2**	Do not allow 3 for 3.0
	2 correct answers	**B1**	
18(b)	A number in the interval ($3950 \leq x < 4050$) e.g. 3950, 4000, 3995.543, 4049.99	**1**	
19	(+)7y	**1**	
20(a)	3000 (cm^3)	**1**	
20(b)	3 (litres)	**1**	Follow through *their* answer to **(a)** ÷ 1000
21	3 and 3	**2**	
	1 correct answer	**B1**	
22	17, 18 and 19	**1**	Accept in any order

<table>
<tr><th>Question</th><th>Answer</th><th>Mark</th><th>Further Information</th></tr>
<tr><td rowspan="2">23</td><td>
<table>
<tr><td>×</td><td>1</td><td>$\frac{2}{5}$</td></tr>
<tr><td>$\frac{1}{5}$</td><td>0.2</td><td>$\frac{\mathbf{2}}{\mathbf{25}}$ or 0.08</td></tr>
<tr><td>5</td><td>5</td><td>2</td></tr>
</table>
</td><td>2</td><td>Allow equivalent fractions or decimals for all entries.</td></tr>
<tr><td>Two correct.</td><td>B1</td><td></td></tr>
<tr><td>24</td><td>5</td><td>1</td><td>5^3 scores 0</td></tr>
</table>

Question	Answer	Mark	Further Information
25	A correct construction with clear construction lines, e.g.  	**2**	The line must go through *P*. Condone one arc on *AB* if radius of arc = length *PB.* ± 2° tolerance
	a pair of arcs equidistant from *P* that intersect *AB* **or** perpendicular line through *P* with no / incorrect construction arcs **or** fully correct construction of any perpendicular line not though *P*	**M1**	Condone one arc on *AB* if radius of arc = length *PB* ± 2° tolerance