Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

MATHEMATICS **1112/01**

Paper 1 **October 2022**

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 a 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.

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

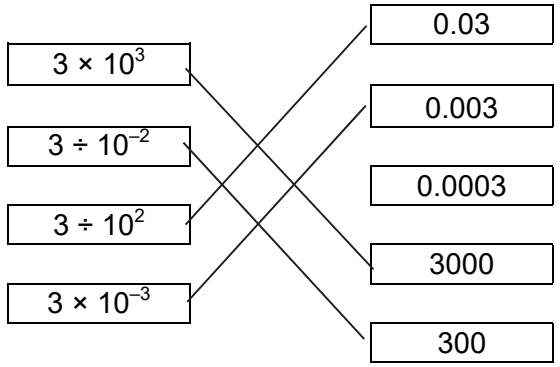
Question	Answer	Mark	Further Information
1	☐ ☑ ☐ ☑	**1**	Both answers correct for the mark. Accept any clear indication.
2	$\frac{7}{20}$ **or** 0.35 **or** 35%	**1**	isw attempts to cancel or convert to an acceptable form. Unacceptable forms are: ratio, words, e.g. 7 : 20, 7 out of 20
3	250 (dollars)	**1**	Award 0 marks for an expression, e.g. 250*h.*
4	40	**1**	

Question	Answer	Mark	Further Information
5	($)231	**3**	
	$\frac{5}{100}$ × (2 × 65 + 2 × 45) oe or better	M2	Or better, e.g. • $\frac{5}{100}$ × 220 • 1.05 × 220 oe • 2 × 68.25 + 2 × 47.25 • 136.5 + 94.5 M2 may be implied by 11 provided not from clear wrong working.
	2 × 65 + 2 × 45 oe or better **or** $\frac{5}{100}$ × *k* where *k* = 65, 45, 130, 90 or better	M1	Or better, e.g. 130 + 90 or 220 seen. Or better, e.g. • $\frac{5}{100}$ × *k* where *k* is 45 + 65 or 110 • Sight of any of: 3.25, 2.25, 6.5, 4.5, 68.25, 47.25,136.5, 94.5, 5.5 or 115.5 • 1.05 × *their* total cost oe

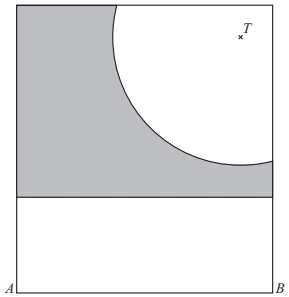
Question	Answer	Mark	Further Information
6	$3\frac{3}{4}$ cao	**3**	
	$\frac{25}{4} \times \frac{3}{5}$ oe **or** $\frac{75}{12} \div \frac{20}{12}$ oe **or** $\frac{75}{20}$ **or** $\frac{15}{4}$ oe	M2	oe is any equivalent correct multiplication method without mixed numbers, e.g. $\frac{6\times4+1}{4} \times \frac{3}{[1\times]3+2}$ oe is dividing any two equivalent fractions with common denominators. Note $\frac{75\div20}{12}$ without recovery is not enough for M2 oe includes mixed numbers, e.g. $3\frac{15}{20}$
	$\frac{25}{4}$ **or** $\frac{5}{3}$ **or** $\frac{3}{5}$	B1	If M2 not awarded. Accept equivalent improper fractions, e.g. $\frac{75}{12}$, $\frac{20}{12}$
7	78 (cm^2)	**2**	
	5 × 3 × 4 + 3 × 3 × 2 oe **or** 9 **and** 15 or better	M1	Or better, so correctly evaluating the area of one or more squares **and** the area of one or more rectangles, e.g. • 18 in place of 9 or 60 in place of 15 • 33 (two squares and a rectangle) May be on diagram. Note volume 5 × 3 × 3 = 45 is M0 even if 9 and 15 also seen.
8(a)	Coordinate (0, –3) plotted correctly on grid	**1**	
8(b)	(6, –1)	**1**	

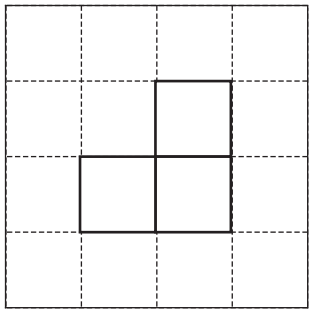
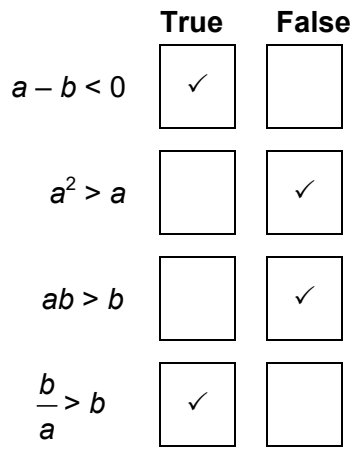
<table>
<tr><th>Question</th><th>Answer</th><th>Mark</th><th>Further Information</th></tr>
<tr><td>9</td><td><table><tr><td>×</td><td>6</td><td>8</td><td>9</td></tr><tr><td>4</td><td>24</td><td>32</td><td>36</td></tr><tr><td>7</td><td>42</td><td>56</td><td>63</td></tr></table></td><td>1</td><td>All four answers correct for the mark.</td></tr>
<tr><td>10</td><td>30 (m), 0.127 (km), 0.13 (km), 200 (m)</td><td>1</td><td>All four answers in the correct order for the mark.</td></tr>
<tr><td rowspan="2">11(a)</td><td><table><tr><th></th><td>Male</td><td>Female</td><th>Total</th></tr><tr><td>Low mass</td><td>18</td><td>22</td><td>40</td></tr><tr><td>Medium mass</td><td>46</td><td>60</td><td>106</td></tr><tr><td>High mass</td><td>26</td><td>28</td><td>54</td></tr><tr><th>Total</th><td>90</td><td>110</td><td>200</td></tr></table></td><td>2</td><td></td></tr>
<tr><td>At least three correct values filled in.</td><td>B1</td><td></td></tr>
<tr><td rowspan="2">11(b)</td><td>$\frac{46}{90}$ oe</td><td>2</td><td>$\frac{23}{45}$ or accept 0.51[1…] or 51[.1…]% for 2 marks.
isw attempts to cancel or convert to an acceptable form.</td></tr>
<tr><td>$\frac{46}{k}$ or $\frac{c}{90}$ seen where $k \geq 46$, $c \leq 90$</td><td>B1</td><td>Mark the uncancelled fraction if they go on to cancel.
Note for 51[.1] alone award B1
Accept $\frac{46}{k} \times 100$ or $\frac{c}{90} \times 100$ seen for the B1 mark.</td></tr>
</table>

Question	Answer	Mark	Further Information
12	A correct comparison of how profits have changed over time, e.g. • Profits from the café have increased. • Profits from selling books have decreased. • In 2021 she made more money from the café (than in 2019). • In 2021 she made more money from the café (and less money from selling books). • In 2019 she made most of her money from selling books but in 2021 she got nearly half of her profits from the café. • The proportion of money made from selling books is decreasing.	**1**	Accept, **any** correct implied comparison between 2019 and 2021 (that is extra to Samira's comparison – the total profits have increased), e.g. • Profits increased by 20 thousand. • It was 160 (thousand), now it is 180 (thousand). • She makes more money from the café. Do **not** accept, e.g. • In 2021 she made more money from selling books than from the café. *(Doesn't show how profits have changed, this is true for all years).* • In 2020 she made over 120 (thousand dollars) from selling books. *(Only looking at one year).* • In 2021 the money from the cafe had increased, but the money from books had decreased. *(This is comparing the café profits with book profits rather than comparison over time).*
13	$\frac{7}{10}$ $\frac{19}{30}$ (circled) $\frac{11}{15}$ $\frac{2}{3}$	**1**	Accept any clear indication.
14	13	**1**	
15	$10m - 3n$ **and** $28x^2 - 12x$	**2**	Must be fully simplified, e.g. $10m + -3n$ scores 0
	$10m - 3n$ **or** $28x^2 - 12x$	B1	

Question	Answer	Mark	Further Information
16	42	**2**	
	For sight of any of • 4.2 × (3.6 + 6.4) **or** 4.2 × 10 • 15.12 • 26.88 • figs 1512 **and** figs 2688	B1	Implied by answer figs 42 Figs means a place value error, e.g. with an incorrect decimal point.
17		**2**	
	For **two** or **three** correct answers.	B1	
18	$4n + 3$ oe	**2**	oe, e.g. $7 + (n – 1)4$ Accept, e.g. $Tn = 4n + 3$ oe.
	For $4n + c$ **or** $kn + 3$ where $k \neq 0$	B1	Award B1 for correct answer seen then spoilt.
19	8.1 5500 (8.6) 4900 9	**1**	Accept any clear indication.
20	($)48 [.00]	**1**	
21	5	**1**	

Question	Answer	Mark	Further Information
22	Girls ticked **and** A correct explanation involving the mean, e.g. • They have a higher mean. • The mean shows which is generally higher.	**1**	Or equivalent reason. Accept, e.g. because of the mean. If girls ticked with a correct reason, ignore extra references to mode and/or range.
23	$x + y - m = x - m + y$ $\quad$ $x + a - b = b - a + x$ $t \times m \times c = c \times t \times m$ $\quad$ $(v+w) + x = (w+v) + x$	**1**	Accept any clear indication.
24(a)	Some indication of the change in height increasing, e.g. • The height of the water increases **faster**. • The tap was turned up. • The water got faster. • The flow of water increases.	**1**	Accept, e.g. • The rate gets faster. • It (started slowly then) got faster. Do **not** accept (alone), e.g. • The **line** becomes steeper. • The **graph** increases faster. • The height increases constantly. • The height increases.
24(b)	Straight line from (0, 0) to (8, 10)	**2**	Tolerance ± half a square radially. Need not be labelled.
	One straight line from (0, 0) to (k, 10) where $k \neq 0$ or 8 **or** A single straight line with a correct gradient for at least one second, e.g. passing through (0, 0) and (1, 1.25)	B1	Tolerance ± half a square radially. Does not have to start at (0, 0) for this mark, i.e. must pass through (a, b) and (a + 1, b + 1.25). Tolerance ± half a square radially.

Question	Answer	Mark	Further Information
25	12:05, 12:05 pm oe	**2**	Accept time with, e.g. dash, space, full stop, etc. in place of the colon.
	49 ÷ 14	M1	Implied by sight of any of 3 hours 30 minutes, 3.5 (hours), 210 (minutes) or 3:30
26	196	**2**	
	14 **or** 14^2 **or** 529 – 207 – 207 + 81 or better	B1	Accept 14 × 14 Or better, e.g. 529 – 414 + 81
27	73 × 0.26 73+ $\frac{2}{15}$ 73+ 0.49 73 × $\frac{3}{7}$	**1**	Both answers correct for the mark. Accept any clear indication.
28		**2**	Correct region must be shaded or unambiguously indicated, ignore extra lines and arcs only if shading makes the region clear. For 1 or 2 marks, • Boundaries must at least reach edge of garden. • Allow tolerance of ± 2 mm.
	For one complete boundary correct **or** 3 [cm] **and** 4 [cm]	B1	Ignore extra incorrect lines and arcs if one correct boundary drawn. May be seen written near scale or implied by two correct partial boundaries.

Question	Answer	Mark	Further Information
29		**1**	Can be drawn anywhere on the grid. Accept free-hand drawing. Ignore shading. Must be correct orientation. Do **not** accept without internal lines.
30	(4, –2)	**1**	
31		**2**	Accept any clear indication.
	Any **three** correct answers.	B1	