Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

MATHEMATICS **1112/02**

Paper 2 **October 2020**

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

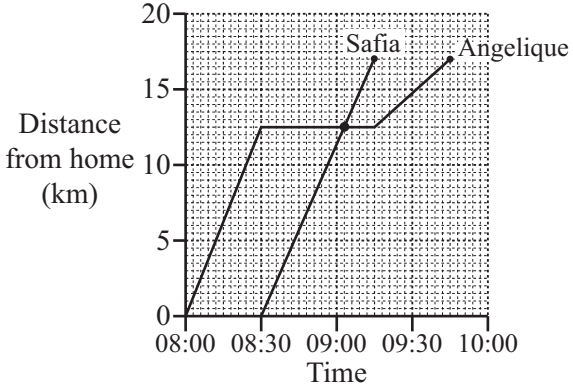
<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Further Information</th></tr>
<tr><td>1</td><td>4</td><td>1</td><td></td></tr>
<tr><td rowspan="2">2</td><td><table><tr><td>Colour of car</td><td>Tally</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table></td><td>2</td><td>Accept a list of at least 3 different car colours if the columns or rows have no heading.
Accept : Amount, Frequency or Number for ‘Tally’</td></tr>
<tr><td>Data collection sheet with:
a column/row labelled colour (of car)
or
column/row labelled Tally or Frequency or both oe</td><td>B1</td><td>Accept a list of at least 3 different car colours in a column/row.

Do not accept
• a question with answer options, e.g. a question from a questionnaire
• a graph/axes instead of a table</td></tr>
<tr><td>3</td><td>220 (cm^3)</td><td>1</td><td></td></tr>
</table>

Question	Answer	Mark	Further Information
4(a)	$20 + 15h$ or $15h + 20$	**1**	
4(b)	\$110	**1**	FT from an incorrect formula if at least two different arithmetic operations are involved and provided cost > 0
5	50.09 (cm^2)	**2**	Accept 50.1 for 2 marks. Accept 50 for 2 marks if supported by working.
	evidence seen of one correct, relevant area calculation e.g. 8.2×3.2 or 26.24 **or** 5.3×4.5 or 23.85 **or** 8.5×4.5 or 38.25 **or** 3.2×3.7 or 11.84 **or** 8.5×8.2 or 69.7 **or** 3.7×5.3 or 19.61	**M1**	
6	7.5 (%)	**2**	Accept $7\frac{1}{2}$ % Do **not** accept 1.075
	$\frac{2580-2400}{2400}$ **or** $\frac{2580}{2400} - 1$ **or** $\frac{2580}{2400} \times 100$ **or** 0.075 oe **or** 107.5(%)	**M1**	

Question	Answer	Marks	Further Information
7	(2, 8) (0, 4) (100, 302) (9, 29)	**1**	Accept any clear indication.
8	13 (cm)	**1**	
9	30	**1**	
10 (a)	$\frac{6}{3}$ $6\frac{3}{87}$ $14\frac{3}{6}$ $6\frac{3}{14}$ $3\frac{6}{14}$	**1**	Accept any clear indication.
10 (b)	119 **and** 13	**1**	In this order. Accept any multiple of 119 and 13, (must be the same multiple of each e.g. 238 and 26)
11	A set of data with either 2 or 4 numbers where the middle two numbers, when put in order, sum to 10 and 5 is not one of the numbers in the set.	**1**	e.g. 4,6 2,3,7,8 Accept correct numbers in any order.
12	2 : 3 4 : 3 3 : 2 6 : 8 15 : 10	**1**	Accept any clear indication.

Question	Answer	Marks	Further Information
13	It is a biased / leading question.	**1**	Accept, "He is trying to get people to agree with him." Do **not** accept comments about the question being closed / open / fair.
14	90 (km)	**2**	Accept answers in the range 86 – 94
	140 ÷ 7 **or** Scale is 1 cm to 20 km **or** 1:2 000 000	**M1**	M1 may be implied by 20 Accept measurements of 6.8 to 7.2 in place of 7 M1 may be implied by (19.4 to 20.6) Accept M1 for full correct method $140 \times \frac{4.5}{7}$ oe which may be done in stages and may include premature rounding.

Question	Answer	Marks	Further Information
15 (a)	45 (minutes)	**1**	
15 (b)		**1**	A line from (08:30, 0) to (09:15, 17) $\pm\frac{1}{2}$ small square tolerance.
15 (c)	(0)9:03	**1**	Accept (0)9:01 to (0)9:05 FT *their* diagonal straight line starting at 08:30 Accept unambiguous times, e.g. using space, dot, dash in place of the colon. Accept 9:03 am

Question	Answer	Marks	Further Information
16 (a)	$\frac{54}{120}$ oe	**1**	Equivalent answers include $\frac{9}{20}$, 0.45 , 45% Do **not** accept ratio answers e.g. 54:120
16 **(b)**	15	**2**	
	0.575 × 120 **or** (0.575 – 0.45) × 120 **or** (0.575 – *their* 0.45) × 120	**M1**	M1 may be implied by 69
17	$2^2 \times 3^2 \times 7$	**2**	Accept 2×2×3×3×7 Accept e.g. $2^2 \times 3^2 \times 7 = 252$
	For expressing 252 as a product of factors, e.g. 4 × 63. This could be done implicitly using e.g. a factor tree, repeated division, listing 2, 2, 3, 3, 7	**M1**	Do **not** award M1 for just 2, 3 and 7 alone Do **not** accept 1 × 252 as a product

Question	Answer	Marks	Further Information
18	Indicates Yellow **and** gives correct working, e.g. ● Showing 6.2 g per 100 ml equates to 15.5 g of sugar in 250 ml ● Showing 14.5 g in 250 ml is equivalent to 5.8 g in 100 ml	**2**	Correct working could be implied by sight of either 15.5 or 5.8
	Correct method to compare 14.5 g in 250 ml with either 2.4 g or 6.2 g in 100 ml. e.g. ● 2.4 × 2.5 ● 6.2 × 2.5 ● 14.5 ÷ 2.5 A correct method could also involve comparing sugar in 500 ml or 1000 ml of drink.	**M1**	Correct working could be implied by sight of either 15.5 or 5.8
19	115.(...)	**1**	
20	110	**2**	
	$80 \times \frac{11}{8}$ oe	**M1**	Or equivalent, e.g. $\frac{80 \times 55}{40}$, 200×0.55

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Further Information</th></tr>
<tr><td rowspan="2">21</td><td>A complete trial and improvement method leading to the answer $x = 8.7$

Must include all three marking points below.</td><td>3</td><td>Ignore the final column in the table when marking.
<table><tr><th>x</th><th>$x^2 - 3x$
(Accept appropriately rounded or truncated answers)</th></tr><tr><td>8.1</td><td>41.31</td></tr><tr><td>8.2</td><td>42.64</td></tr><tr><td>8.3</td><td>43.99</td></tr><tr><td>8.4</td><td>45.36</td></tr><tr><td>8.5</td><td>46.75</td></tr><tr><td>8.6</td><td>48.16</td></tr><tr><td>8.7</td><td>49.59</td></tr><tr><td>8.71</td><td>49.7341</td></tr><tr><td>8.72</td><td>49.8784</td></tr><tr><td>8.73</td><td>50.0229</td></tr><tr><td>8.74</td><td>50.1676</td></tr><tr><td>8.75</td><td>50.3125</td></tr><tr><td>8.8</td><td>51.04</td></tr><tr><td>8.9</td><td>52.51</td></tr></table></td></tr>
<tr><td>Any correct trial of a number between 8 and 9, not including 8 and 9</td><td>B1</td><td>For first two B1 marks to be awarded, one appropriate trial to at least 1 decimal place and one appropriate trial to at least 2 decimal places must be seen,
e.g.trial at 8.8 and trial at 8.74 scores both B marks

e.g. trial at 8.72 and trial at 8.73 scores both B marks

e.g. trial at 8.7 and trial at 8.8 scores first B1 but not second</td></tr>
</table>

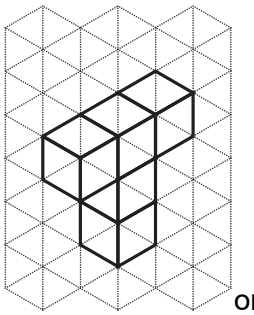
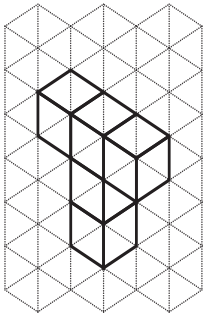
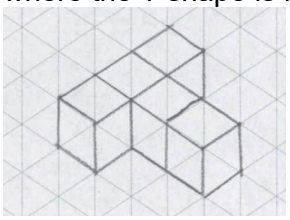
	A correct trial of x where $8.73 \leq x \leq 8.75$	**B1**	
	8.7 in the answer space	**B1**	

Question	Answer	Marks	Further Information
22	Ticks Mike with 2 supporting figures that can be compared, e.g. 75% and 80% oe	**2**	Accept fractions with a common denominator and decimals e.g. $\frac{15}{20}$ **and** $\frac{16}{20}$, 0.75 **and** 0.8 Other values may be possible, e.g. two ratios with a common value.
	360 ÷ 450 **or** 2700 ÷ 3600 **or** 75% **or** 80%	**M1**	Award M1 for one correct value. Accept fractions and decimals.
23	24 (km)	**1**	Accept 24-24.2 (km)
24	20 (m)	**2**	
	$\frac{72\times1000}{60\times60}$ **or** for sight of 1.2 **or** 1200 **or** 0.02	**M1**	
25	0.00451 cao **and** 779 000 cao	**2**	Do **not** accept 0.0045100 Do **not** accept 779 000.0
	1 correct	**B1**	

Question	Answer	Mark	Further Information
26		**1**	Accept any clear indication.

	Congruent	**Not Congruent**
A and B		✓
A and C		✓
B and D	✓	

27	(2,–4)	**1**	

Question	Answer	Mark	Further Information
28 (a)	C	**1**	
28 (b)	 or 	**2**	Outline of individual cubes or shading does not need to be shown e.g.  Ignore hidden lines and shading.
	For a correct isometric drawing in a different orientation where the T shape is not the front e.g. 	**B1**	Ignore hidden lines and shading.
29	A correct comparison of the length of battery life e.g. Battery A lasts longer Battery B has a shorter battery life **and** A correct comparison of the variability of the batteries e.g. Battery B is more variable Battery A is more consistent (stable, predictable, reliable)	**2**	Do **not** accept a comparison of the figures without an interpretation e.g. the median is bigger for Battery A. For 2 marks condone an explanation comparing the maximum or minimum life e.g. the maximum life of Battery A is 2.2 which is larger than the maximum life of Battery B which is 1.9
	1 correct comparison	**B1**	