Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

MATHEMATICS **1112/02**

Paper 2 **April 2021**

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.

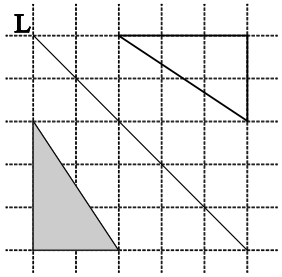
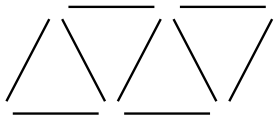
Mark schemes should be read in conjunction with the question paper and the End of Series Report. Cambridge will not enter into discussions about these mark schemes.

Mark scheme annotations and abbreviations

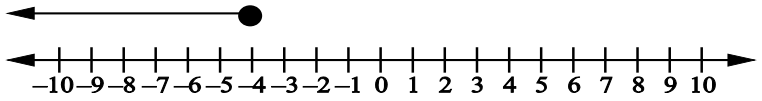
M1	method mark
A1	accuracy mark
B1	independent mark
FT	follow through after error
dep	dependent
oe	or equivalent
cao	correct answer only
isw	ignore subsequent working
soi	seen or implied

Question	Answer	Marks	Further Information
1	$>$ $<$ =	**1**	1 mark for three correct.
2	$\frac{4}{10}$ $\frac{4}{100}$ (circled) $\frac{4}{1000}$ $\frac{4}{10000}$	**1**	Accept any clear indication.
3	(x =) 7	**3**	
	getting a correct equation with x's on one side. This is likely to be one of $2x - 2 = 12$ $2x = 14$, $-2x = -14$ $-2 = -2x + 12$ $5x - 3x = 12 + 2$	M2	or e.g. $\frac{5x}{3} - x = 4 + \frac{2}{3}$
	either for correctly expanding the brackets $3x + 12$ **or** for correctly collecting x's on one side and numbers on the other side having expanded incorrectly. **or** for a correct first step of dividing both sides by 3	M1	$\frac{5x-2}{3} = x + 4$ or $\frac{5x}{3} - \frac{2}{3} = x + 4$
4	29	**1**	Do not accept $\frac{29}{1}$

Question	Answer	Marks	Further Information
5	2.16 (hours)	**2**	Accept $2\frac{4}{25}$. Accept 2 hours 9.6 minutes if units are stated. Accept answers 2, 2.1 or 2.2 if 2.16 seen in working.
	1836 ÷ 850	M1	M1 implied by fractions equivalent to $\frac{1836}{850}$. M1 implied by 2.16 spoilt or answer 2 hours 16 mins
6(a)	(Team) E **and** B **and** I	**2**	In either order
	(Team) E **or** B **and** I	B1	In either order
(b)	Positive Negative No oe in this order	**2**	Accept +ve Do **not** accept +, direct, increasing Accept –ve Do **not** accept –, indirect, decreasing Accept none, neutral, zero Ignore adjectives describing the strength of the correlation (e.g. strong or weak).
	2 correct answers	B1	

Question	Answer	Marks	Further Information
7		**1**	
8	Gabriella with 2 supporting figures that can be compared e.g. 0.47 or 0.46(8…) **and** 0.4 or 0.40(0…)	**2**	May be in equivalent form, e.g. $\frac{45\,803}{97\,788}$ and $\frac{39\,150}{97\,788}$ **or** correct percentages 47(%) or 46(.8…)(%) **and** 40(%) or 40(.0…)(%) Other values may be possible, e.g. two ratios with a common value. Accept values still to read in comparable form e.g. 53(%) **and** 60(%) Accept division the other way round in comparable form implied by e.g. 2.1(3) **and** 2.5 or 2.4(9..)
	One of the values seen in correct percentage **or** decimal form **or** evidence of a correct common denominator.	M1	
9(a)		**1**	Accept if not drawn in table.
(b)	(Number of rods needed = pattern number) × **2** (then) + **1**	**1**	Accept any clear indication.
10	0.45 0.55 0.65 **0.75** **0.85** 0.95	**1**	Both correct with no extras. Accept any clear indication.

Question	Answer	Marks	Further Information
11	5	**1**	
12	5 : 12	**2**	Do **not** accept 5 cm : 12 cm for 2 marks
	A correct ratio in the same units.	M1	e.g. 0.75 (m) : 1.8 (m) 75 (cm) : 180 (cm) 25 : 60 5 cm : 12 cm $1 : \frac{12}{5}$ oe $\frac{5}{12} : 1$ oe
13	22	**1**	Do **not** accept 22.2
14	$3 \times 5 \times 7^2$	**2**	Accept $3 \times 5 \times 7 \times 7$ Do **not** accept 1 as a factor Accept $3 \times 5 \times 7^2 = 735$
	For expressing 735 as a correct product of factors, e.g. 5×147. This could be done implicitly using e.g. a factor tree, repeated division, listing 3, 5, 7, 7.	M1	Do **not** award M1 for just 3, 5 and 7 alone.
15	3.46 cao 6.87 cao 1.55 cao	**2**	
	Any 2 correct	B1	
16(a)	110 (°)	**1**	Accept $\pm 2°$
(b)	110 (°)	**1**	Allow FT from *their* answer in part **(a)**.

Question	Answer	Marks	Further Information
17	How do you travel to school? oe With at least 3 response boxes which can include "other" oe	**2**	Question must mention school.
	Suitable question **or** at least 3 response boxes which can include other oe	B1	
18	0.12 **and** 0.04	**2**	In this order
	$1-(0.15+0.32+0.08+0.29)$ oe soi by 0.16 **or** by their **two** positive values having a sum of 0.16	M1	oe could be working in percentages.
19	($) 192(.00) **and** (€) 64(.00)	**2**	
	One correct answer	B1	
20	1 500 000 (m^2)	**1**	Accept correct standard form i.e. 1.5×10^6
21(a)	$x \leq -4$ or $-4 \geq x$	**2**	$x \leq -4$ or $-4 \geq x$ in the working with -4 on the answer line scores M1 only
	For correctly gathering numbers on one side and letters on the other e.g. • $19-7 \leq -3x$ • $3x \leq 7-19$ • $\frac{19}{3}-\frac{7}{3} \leq -x$	M1	Or better • $12 \leq -3x$ • $3x \leq -12$ • $4 \leq -x$ Accept any inequality sign or = for the M1 mark. M1 implied by answer -4
(b)		**1**	FT *their* inequality if in the form "*x* inequality symbol number" If there is no inequality on the answer line FT from their final inequality. Do **not** accept empty circle unless this is a correct FT from *their* inequality.

Question	Answer	Marks	Further Information
22	93.75 (%)	**2**	
	$(k \times)$ 0.75 × 1.25 oe	M1	k could be any value. M1 implied by 0.9375, 0.938 or 0.94 oe e.g. 0.75 × 0.25 + 0.75 (× 1)
23	30.8 (cm)	**2**	Accept 30.8 to 31 Accept $6\pi + 12$
	$(0.5 \times)$ 12π seen	M1	Implied by 37.6 to 38 **or** 6π **or** 18.8 to 19 Allow $12\pi + k$ or $6\pi + k$ seen for M1
24	94 (cm)	**2**	
	$\sqrt{8^2 + 15^2}$ soi by 17 or 34	M1	
25	5 – 9 cao	**1**	Do **not** accept 16
26	3	**1**	
27	1875 (cm^2)	**3**	
	25 (cm) **and** 75 (cm) seen **or** for answer 0.1875 (m^2)	B2	0.25 (m) **and** 0.75 (m) is not far enough for B2
	For correct method to finding one side of the rectangle. e.g. dividing 1 m into 4 parts (and multiplying by 3) **or** $2(3x + x)$ = 200 oe **or** dividing 2 m into 8 parts (and multiplying by 3)	M1	M1 implied by figs 1875 e.g. 187 500 M1 implied by seeing one of 25, 75, 0.25 or 0.75

Question	Answer	Marks	Further Information
28	$1.5a^2$ ☐ $1.5a^3$ ☐ $1.7a^2$ ☐ $1.7a^3$ ✓ $3a^3$ ☐	**1**	Accept any clear indication.