Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

MATHEMATICS **1112/02**

Paper 2 **October 2022**

MARK SCHEME

Maximum Mark: 50

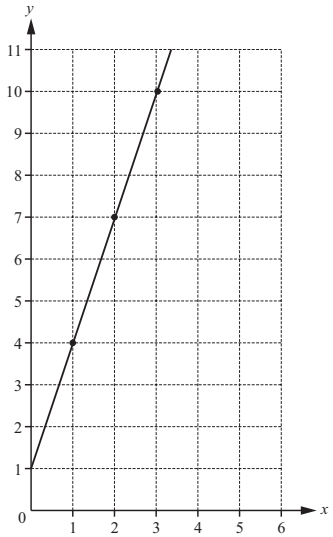
Published

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.

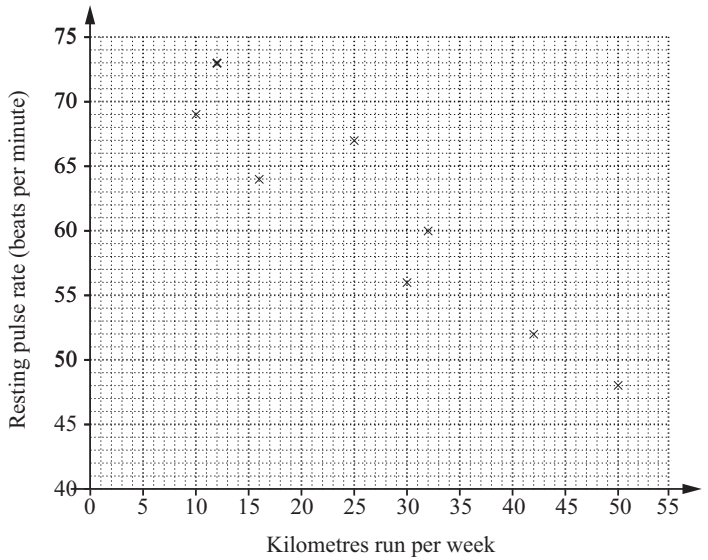
Mark schemes should be read in conjunction with the question paper and the End of Series Report. Cambridge will not enter into discussions about these mark schemes.

Mark scheme annotations and abbreviations

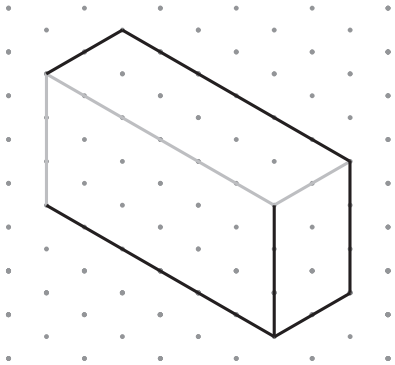
M1	method mark
A1	accuracy mark
B1	independent mark
FT	follow through after error
dep	dependent
oe	or equivalent
cao	correct answer only
isw	ignore subsequent working
soi	seen or implied

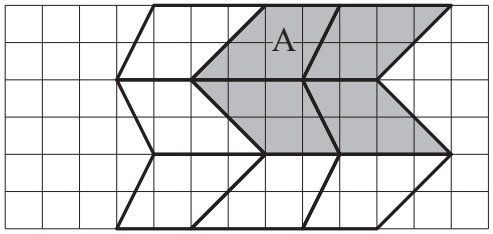
Question	Answer	Marks	Further Information
1(a)	x: 0, 1, 2, 3 y: 1, **4**, **7**, 10	**1**	Both answers correct for the mark.
1(b)	Straight line drawn from at least (0, 1) to (3, 10). 	**2**	Line must reach (0, 1) and (3, 10), mark intention. A correct line implies correct points.
	(0, 1) **and** (3, 10) **and** *their* two points plotted correctly.	B1	
2	29	**1**	

Question	Answer	Marks	Further information
3	9 : 11 **and** $\frac{9}{20}$ **and** 55%	**2**	Accept equivalent ratio for 9 : 11, e.g. 1 :1.2, 0.81 : 1 For 1.2 accept 1.22 or better. For 0.81 accept 0.82 or better. Accept equivalent fraction for $\frac{9}{20}$
	Any **two** out of the **three** sentences correct.	B1	
4(a)	10.7 cao	**1**	
4(b)	3.46 cao	**1**	
5	Two **negative numbers** that subtract to make −5 e.g. −6 (−) −1 −10 (−) −5	**1**	Accept correct pair of negative decimals or fractions. Do **not** accept 0 as one of the numbers.
6	14	**1**	
7	165 (g)	**1**	
8	(49)35	**2**	
	(49)05, (49)20, (49)50, (49)65, (49)80 **or** completes with 2 prime digits	B1	i.e. is a multiple of 3 and 5 **and** has two square digits. i.e. has two prime digits **and** two square digits.

Question	Answer	Marks	Further information
9	40(°)	**2**	
	ABD = 25 **or** 180° – *their ABD* – 115° oe	M1	To identify *ABD* they must give the correct label or mark in the correct place on the diagram or write in the correct calculation 180° – 25 – 115° oe. *Their ABD* must be stated or marked in the correct place on the diagram.
10(a)		**2**	Tolerance ± half square radially. For 2 marks, all 8 points must be correct. Ignore any attempts to join points or draw line of best fit. Ignore extra points.
	For at least **five** correct points.	B1	
10(b)	negative	**1**	Ignore comments about strength. Do **not** accept descriptions, e.g. the higher the distance run, the lower the resting pulse rate.
10(c)	46 57 (68) 7	**1**	Accept any clear indication.

Question	Answer	Marks	Further Information
11(a)	12:45	**1**	Accept ± 5 minutes. Accept with any separator in place of the colon, e.g. dash, full stop, space, etc.
11(b)	Line drawn from (13:45, 10) to (14:15, 10) **and** line drawn from (14:15, 10) to (16:15, 0)	**2**	For 1 or 2 marks, • Ignore vertical line drawn at 12:45 • Tolerance ± 5 minutes.
	Line drawn from (13:45, 10) to (14:15, 10) **or** diagonal line drawn from *their* (14:15, 10) to (16:15, 0) **or** diagonal line drawn from (13:45, 10) to (16:15, 0)	B1	
12	5.4375	**1**	
13	(1, 0)	**2**	
	One correct coordinate.	B1	
14(a)	8 : 3	**1**	
14(b)	1.875 (cups) **or** $1\frac{7}{8}$ **or** 1.88 **or** 1.9	**2**	Do **not** accept $\frac{15}{8}$ for 2 marks.
	$5 \times \frac{\textit{their}\,3}{\textit{their}\,8}$ oe **or** $5 \div 2 \times \frac{3}{4}$ oe **or** 1.875 seen	M1	oe, e.g. $\frac{15}{8}$

Question	Answer	Marks	Further Information
15	88(%)	**2**	
	$\frac{250000-30000}{250000}$ oe or better **or** $\frac{30000}{250000} \times 100$ oe or better	M1	In all calculations allow equivalents with zeros cancelled. Or better, e.g. $\frac{220000}{250000}$ [× 100] ,0.88 Or better, e.g. $[100-]\frac{30000}{2500}$, 12[%] 0.12 is not far enough for M1
16	6 → 16 10 **or** −6 → 64	**2**	
	One correct box.	B1	
17		**1**	

Question	Answer	Marks	Further Information
18	Any **three** or more correct quadrilaterals drawn, e.g. 	**1**	Must be joined to original shape. If more than three quadrilaterals drawn all must be correct for the mark.
19	0.3 **and** 0.1	**2**	Must be given in this order. Accept equivalent fractions and percentages.
	1 – (0.15 + 0.25 + 0.2) oe or better **or** 0.3 for Angelique **or** 0.1 for Jamila	M1	Implied by 0.4 in the working or last two probabilities sum to 0.4 e.g. 0.3 and 0.1 reversed.
20	15.2 **or** 15.22 to 15.23 (cm)	**2**	
	$8.7^2 + 12.5^2$ or better	M1	Or better, e.g. $\sqrt{8.7^2 + 12.5^2}$, 231.94 which could be rounded, e.g. to 232 M1 may be implied by answer 15 or 15.23…
21	☐ ☐ ☑ ☐	**1**	Accept any clear indication.

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Further Information</th></tr>
<tr><td rowspan="2">22(a)</td><td>113 to 113.1… (cm²)</td><td>2</td><td>Accept 36π for 2 marks.</td></tr>
<tr><td>π × 6²</td><td>M1</td><td>π × 36 scores M1
Accept values of π between 3.14 and $\frac{22}{7}$</td></tr>
<tr><td>22(b)</td><td>15 to 15.04… (cm)
or
FT 1700 ÷ their (a) correctly evaluated to at least 2sf.</td><td>1</td><td>FT: As guidance only, common 2sf or 3sf values are, e.g.
<table>
<tr><th>Answer in (a)</th><th>Answer in (b)</th></tr>
<tr><td>6</td><td>280 or 283[.3..]</td></tr>
<tr><td>18.8 or 6π</td><td>90 or 90.1 to 90.4…</td></tr>
<tr><td>24</td><td>71 or 70.8…</td></tr>
<tr><td>37.7 or 12π</td><td>45 or 45.0 to 45.1…</td></tr>
<tr><td>72</td><td>24 or 23.6…</td></tr>
<tr><td>75.4 or 24π</td><td>23 or 22.5 to 22.62</td></tr>
<tr><td>110</td><td>15 or 15.4 to 15.5</td></tr>
<tr><td>144</td><td>12 or 11.8…</td></tr>
<tr><td>452 or 144π</td><td>3.8 or 3.75 to 3.76</td></tr>
</table>
For the FT their answer in (b) must be correct, to at least 2sf, using their unrounded or rounded value in (a).</td></tr>
<tr><td rowspan="3">23</td><td>$2x-2$ or $2(x-1)$</td><td>3</td><td>Check bag labels for evidence of any of these for any marks.</td></tr>
<tr><td>$x-6$ and $2(x-6)$ or better
or
$x-6$ and $2x-12$ or better</td><td>M2</td><td>Or better, e.g. $4x-18$ or with negative signs, e.g.
$[6x-20]$ $[-x]-(x-6)-2(x-6)$ oe
or $-(4x-18)$ or $-4x+18$</td></tr>
<tr><td>$x-6$
or
$2(x-6)$ or $2x-12$
or
their expression for C is 2 × their expression for B</td><td>M1</td><td>Accept with negative sign, e.g.
$-(x-6)$ oe

Must be in terms of x, need not be simplest form.</td></tr>
</table>

Question	Answer	Marks	Further Information
24	21	**3**	
	$\frac{20\times400\times64}{25\times1000}$ oe or better	M2	Or better, e.g $\frac{512000}{25000}$ or $\frac{512}{25}$ or 20.4[8] or 20.5
	Sight of either 25 000 **or** 0.4 **or** $\frac{20\times400\times64}{\text{figs } 25}$ **or** $\frac{20\times(\text{figs } 4)\times64}{25}$ oe or better **or** $\frac{20\times400\times64}{1000}$ oe or better (kg for 20 days) **or** $\frac{400\times64}{25\times1000}$ oe or better (sacks per day)	M1	Accept a correct conversion between kilograms and grams soi, e.g. 25.6 (kg for 1 day). Implied by figs 204[8] or figs 205 Figs *n* means a place value error, e.g.$n \times 10^k$ for any integer *k* including 0 Implied by 512 Implied by 1.024 or 1.02
25	Kite	**1**	
26	A correct explanation, e.g. • The answer should have two decimal places. • When you square a number between 0 and 1, it gets smaller. • The answer should be less than 0.3	**1**	Do **not** accept 'Because the answer should be 0.09' **alone**.