Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

MATHEMATICS **1112/01**

Paper 1 **April 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

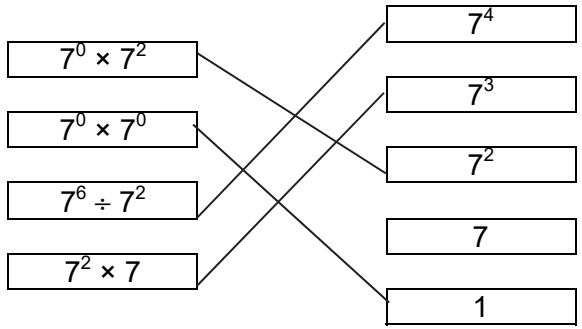
M1	method mark
A1	accuracy mark
B1	independent mark
FT	follow through after error
dep	dependent
oe	or equivalent
cao	correct answer only
isw	ignore subsequent working
soi	seen or implied

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Further Information</th></tr>
<tr><td>1(a)</td><td><table><tr><td>x</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>y</td><td>3</td><td>5</td><td>7</td><td>9</td><td>11</td></tr></table></td><td>1</td><td></td></tr>
<tr><td rowspan="2">1(b)</td><td>y = 2x + 3 ruled line drawn.</td><td>2</td><td>Line must reach (0, 3) and (4, 11), mark intention.
If unsure if ruled, award benefit of the doubt.</td></tr>
<tr><td>For correctly plotting four points (FT from their values).</td><td>B1</td><td>Do not accept bars for plotted points.
Apply the choice of answers rule if extra points are plotted.</td></tr>
<tr><td>2</td><td>10.05 (kg)</td><td>1</td><td></td></tr>
<tr><td>3</td><td>0.6</td><td>1</td><td></td></tr>
<tr><td>4</td><td><table><tr><th></th><th>True</th><th>False</th></tr><tr><td>Angle A is the same size as angle E.</td><td>✓</td><td></td></tr><tr><td>Angle C is the same size as angle H.</td><td></td><td>✓</td></tr><tr><td>Angle A and angle F are alternate angles.</td><td></td><td>✓</td></tr></table></td><td>1</td><td></td></tr>
<tr><td>5</td><td>43</td><td>1</td><td></td></tr>
</table>

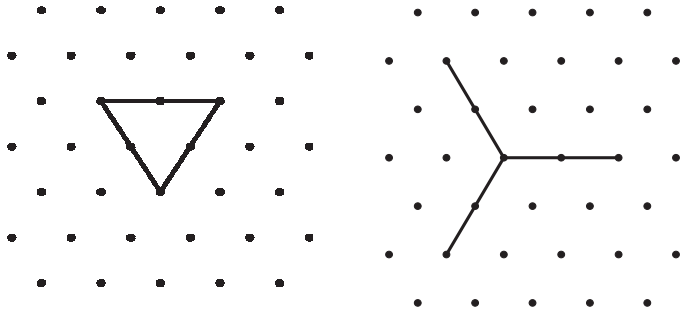
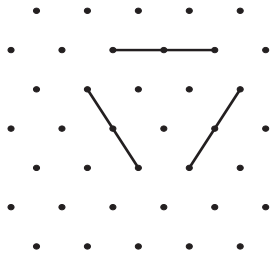
Question	Answer	Marks	Further Information
6(a)	$\frac{2}{3} - \frac{1}{4} = \frac{\boxed{5}}{12}$	**1**	
6(b)	$\frac{\boxed{3}}{8} + \frac{5}{12} = \frac{19}{24}$	**1**	
6(c)	$\frac{2}{\boxed{5}} + \frac{1}{\boxed{4}} = \frac{13}{20}$	**1**	
7	mm^3 m^3 (*l*) ml	**1**	
8	A **and** range(s)	**1**	
9	37	**1**	
10	29	**1**	
11	Divide by 2	**1**	Accept equivalent, e.g. halve, × $\frac{1}{2}$, ÷ 2, × 0.5, **:** 2 Do **not** accept algebraic expressions, e.g. *n* ÷ 2, $\frac{n}{2}$, *n* = ÷ 2

Question	Answer	Marks	Further Information
12	Triangle at (–2, 5) (–2, 2) (–1, 2)	**2**	Mark intention, accept unruled. If a choice of triangles: • Mark the one labelled A • If no label, mark the worst.
	Correct horizontal translation **or** correct vertical translation **or** triangle at (4, –5) (5, –8) (4, –8).	B1	
13	$5x - 6y$ final answer **and** $10x - 9$ final answer	**3**	Must be fully simplified, accept $-6y + 5x$ **and** $-9 + 10x$ but do **not** accept, e.g. $5x + -6y$
	$5x - 6y$ final answer	B1	
	$10x - 9$ final answer	B2	
	If B2 not scored, for sight of [3+] $10x - 12$	B1	i.e. correct expansion of brackets implied by $10x + -9$ or $10x - 9$ seen then spoilt.
14	12	**1**	

Question	Answer	Marks	Further Information
15	B **and** valid statement comparing the distributions. Statement may compare the shape of the distribution or interpret the meaning.	**1**	Assume the statement is talking about B if they chose B (hence comments about B being in brackets). For the statement: Accept, e.g. • The mean/median/mode/average is higher (for B) • There are higher bars at the beginning in A • It took longer (to complete B) • There is nobody in the last 2 bars for A • More people took more time (for B). Do **not** accept, e.g. • The range is bigger (for B) • They skipped a bar.
16(a)	31.46 cao	**1**	
16(b)	30 cao	**1**	
17	3000 (mm^2)	**1**	
18	☑ ☐ ☐ ☐ ☐ ☑ ☐ ☑ ☐	**2**	
	For 2 correctly placed ticks.	B1	
19	6	**1**	

<table>
<tr><th>Question</th><th>Answers</th><th>Marks</th><th>Further Information</th></tr>
<tr><td rowspan="2">20</td><td>
<table>
<tr><th>Group</th><th></th><th>Frequency</th></tr>
<tr><td>$1.00 < h \leq 1.20$</td><td></td><td>3</td></tr>
<tr><td>$1.20 < h \leq 1.40$</td><td></td><td>3</td></tr>
<tr><td>$1.40 < h \leq 1.60$</td><td></td><td>4</td></tr>
<tr><td>$1.60 < h \leq 1.80$</td><td></td><td>4</td></tr>
<tr><td>$1.80 < h \leq 2.00$</td><td></td><td>1</td></tr>
</table>
</td><td>2</td><td>Accept figures to 1 decimal place.
Ignore tally mark column.</td></tr>
<tr><td>Correct intervals
or
correct frequencies for the two given groups.</td><td>B1</td><td></td></tr>
<tr><td rowspan="2">21</td><td>All four matchings correct.
 
</td><td>2</td><td></td></tr>
<tr><td>Two or three matchings correct.</td><td>B1</td><td></td></tr>
</table>

Question	Answer	Marks	Further Information
22	45 000 (m^2)	**1**	
23	A correct algebraic method seen leading to (x =) 4 **and** (y =) 3	**3**	Do **not** accept trial and improvement as an algebraic method. Correct method implied by sight of: $5y = 15$ oe or $25x = 100$ oe
	A correct algebraic method leading to either $x = 4$ **or** $y = 3$	M2	
	A correct method for eliminating either x or y, e.g. • correct substitution and evaluation from incorrect first value, i.e. two values satisfying one of the original equations • correctly re-arranging one of the equations to make one variable the subject and then substitute into the other equation, e.g. 5x + 2(10x – 37) = 26 • making the coefficients of x or y equal followed by an appropriate, consistent subtraction or addition across all 3 terms, with no more than 1 arithmetic error.	M1	Two values satisfying one of the original equations scores M1 even with no working or trial and improvement method, e.g. $x = 3.2$ and $y = 5$ $x = 4$ and $y = 3$ from no working or incorrect working scores M1 only.
24(a)	81	**2**	
	$(4.5 \times 2)^2$ **or** 9^2 **or** for sight of 20.25	M1	
24(b)	48	**2**	
	$\frac{14\times(2\times16+16)}{[14]}$ **or** $\frac{28\times(16+0.5\times16)}{[14]}$ **or** $\frac{16(28+14)}{[14]}$ **or** $\frac{16\times42}{[14]}$ **or** $2 \times 16 + 16$ oe **or** for sight of 672	M1	oe simplified, e.g. $\frac{8\times42}{7}$, 8 × 6

Question	Answer	Marks	Further Information
25	350.592 **and** 54.78	**2**	In correct order.
	One correct answer.	B1	
26	Any pattern made from 3 lines with rotational symmetry **and** line symmetry, e.g. 	**1**	Lines do not need to be connected, e.g.  Lines can be any length provided they fit on the grid. Lines do not have to be ruled. Ignore lines of symmetry drawn.
27	7.2	**1**	Accept only these equivalents, $7\frac{1}{5}$, $\frac{36}{5}$, $\frac{72}{10}$, $7\frac{2}{10}$, 7.2×10^0

Question	Answer	Marks	Further Information
28	48(°)	**3**	May be in correct place on diagram if answer line is blank.
	For both 60(°) **and** 72(°) **or** for a fully correct method, e.g. $\mathbf{180} - \frac{\mathbf{360}}{\mathbf{5}} - \frac{\mathbf{360}}{\mathbf{6}}$	M2	Angles may be seen in the diagram. For M2, 72 and 60 must **not** be a clearly incorrect angle, e.g. must not be on diagram as interior angles of the polygons or labelled as angles *ABE, ECD.*
	For sight of any of • $\frac{\mathbf{360}}{\mathbf{5}}$ **or** 72(°) **or** 108(°) **or** 540(°) **or** $\frac{540}{5}$ • $\frac{\mathbf{360}}{\mathbf{6}}$ **or** 60(°) **or** 120(°) **or** 720(°) **or** $\frac{720}{6}$	B1	
29	Correct ☐ Incorrect ☑ ☐ ☑ ☑ ☐	**1**	
30	38(%)	**2**	
	50% of 52(%) **or** 25% of 48(%) **or** 52% of 50(%) **or** 48% of 25(%) 26(%) **or** 12(%)	M1	Accept equivalent decimals or fractions. Or better, e.g. $\frac{50}{100} \times \frac{52}{100}, 0.26, 0.25 \times 48, 0.12$