Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

MATHEMATICS **1112/01**

Paper 1 **October 2021**

MARK SCHEME

Maximum Mark: 50

Published

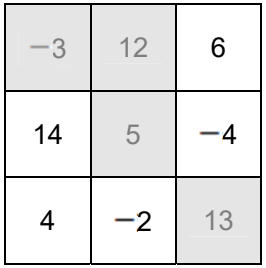
This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Markers were instructed to award marks. It does not indicate the details of the discussions that took place at a Markers' meeting before marking began, which 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.

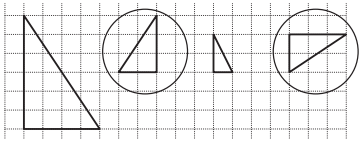
Mark scheme annotations and abbreviations

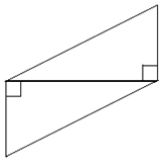
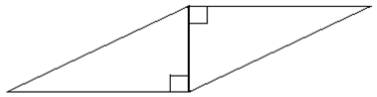
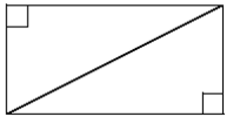
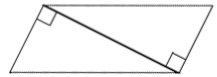
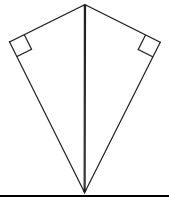
M1	method mark
A1	accuracy mark
B1	independent mark
FT	follow through after error
dep	dependent
oe	or equivalent
cao	correct answer only
isw	ignore subsequent working
soi	seen or implied

This document has **10** pages. Any blank pages are indicated.

Question	Answer	Mark	Further Information
1	$\frac{16}{31}$ cao	**1**	
2	circumference, radius **and** diameter	**2**	In correct order. Accept reasonable misspellings.
	one correct	B1	
3		**2**	
	for either 6 **or** −2 in the correct place.	B1	
4	[x =] 5	**2**	
	–3x = 2 – 17 or 3x = 17 – 2 or better	M1	Accept correct division of all terms by 3 or –3 e.g. $\frac{17}{3} - x = \frac{2}{3}$ for M1
5 (a)		**1**	Accept diagram drawn in any position but must be correct orientation
(b)	4	**1**	
(c)	27	**1**	

Question	Answer	Mark	Further Information
6	True: [✓] False: [ ] [ ] [✓] [ ] [✓]	**1**	Accept any clear indication
7	$\frac{57}{200}$ cao	**2**	
	$\frac{285}{1000}$ oe fraction	B1	Note an equivalent fraction does not include decimals B0 for e.g. $\frac{28.5}{100}$
8	504 [cm] 5400 [mm] 540 [m] 5.04 [km]	**1**	Accept correct conversions with units for any/all value(s). e.g. 504 cm 540 cm 54000 cm 504000 cm
9	All outcomes listed [1H] 2H 3H 4H 1T 2T 3T 4T	**1**	Accept in any order. Do **not** accept repeats apart from 1H
10	corresponding **and** alternate	**2**	In the correct order. Accept reasonable misspellings.
	One correct sentence	B1	

Question	Answer	Mark	Further Information	
11		**1**	Two correct triangles ringed and no others. Ignore ring around A Accept any clear indication.	
12	7.22 cao	**2**	Do **not** accept recurring notation e.g. $7.\dot{2}\dot{2}$, $7.\overline{22}$, 7.22… award B1 for these	
	7.2 or 7.22[2…] **or** for *their* more accurate value correctly rounded to 2dp	B1	Could be in working.	
13	0.1 **or** $\frac{1}{10}$ **or** 10^{-1}	**1**		
14 (a)	3.198	**2**		
	For the figures 3198 with a decimal place at any point (including before or after any zeros) **or** a correct method, including correct placement of decimal point, with one arithmetic error	M1	e.g. M1 for 246 x 13 638 2460 3098 **and** answer 3.098 Error in the first 6 but everything else correct (FT the initial error). e.g. M0 for 246 x 13 738 246 984 missing the 0 is not an arithmetic error, or e.g. adding tenths to units (even if the 0 is there) due to misalignment of columns or misplacement of decimal point in 738 and 2460 implied by figures 984 in answer	Error is likely to be one incorrect digit in **this** correct working 246 x 13 **738** **2460** 3198

Question	Answer	Mark	Further Information
(b)	3.2	**1**	Do **not** accept with trailing zeros e.g. 3.200 FT from their answer to part **(a)** provided a more accurate figure shown.
15 (a)	 **or**  **or** 	**1**	In any orientation e.g. 
(b)		**1**	In any orientation. Do **not** accept a square.
16	✓ ☐ ☐ ☐ ☐ ✓	**1**	In correct order. Accept any clear indication.

Question	Answer	Mark	Further Information
17	6 and 7	**1**	In correct order. Do **not** accept $\sqrt{36}$ and $\sqrt{49}$ or 6^2 and 7^2
18	$\frac{13}{60}$	**3**	Accept equivalent fractions. Note it is not an equivalent **fraction** if it contains decimals, which is common in this question e.g. award M2 for $\frac{6.5}{30}$
	$1-\left(\frac{12}{30}+\frac{5}{30}\right)$ or better **or** for $\left(1-\left(\frac{12}{30}+\frac{5}{30}\right)\right)\div 2$ correctly evaluated with one incorrect numerator from 12 or 5	M2	M2 implied by $\frac{13}{30}$ or equivalent fraction For M2 accept other correct equivalent fractions using a common denominator. i.e. no more than one arithmetic error
	$\frac{12}{30}$ **and** $\frac{5}{30}$ **or** $\frac{6\times2+5\times1}{6\times5}$ or better **or** for $1-\left(\frac{12}{30}+\frac{5}{30}\right)$ with one incorrect numerator **or** for evaluating correctly $\left(1-\frac{a}{b}\right)\div 2$	M1	Accept other correct equivalent fractions using a common denominator. M1 implied by $\frac{17}{30}$ oe Where $\frac{a}{b}$ comes from any attempt to process $\frac{2}{5}$ **and** $\frac{1}{6}$ Award M1 for $\left(1-\frac{a}{b}\right)\div 2$ even if they work in decimals provided their answer is correctly converted back to a fraction.
19	–1, 1, 9	**1**	In correct order.
20 (a)	1 [km/h] not from wrong working	**1**	Accept –1 [km/h]

Question	Answer	Mark	Further Information
(b)	A comparison that identifies Monday as fewer cars **and** faster than Thursday. e.g. Monday with less cars/Thursday as more cars **and** Monday, as faster speeds/Thursday, as slower speeds /average for Monday is greater than average for Thursday	**1**	If no comparison accept correct supporting figures to imply comparison e.g. • 12 cars Monday **and** 22 cars Thursday • Median is 59.5 on Monday **and** 44 on Thursday Accept mean, median or mode for "average" Ignore incorrect figures only if there is a correct comparison e.g. "Monday has less cars and the median for Monday is 59.5 **which is greater than the median for Thursday** which is 47" Comments with no reference to Thursday/Monday are unlikely to score, they're usually general comments about traffic conditions on the road rather than comments about the data and are often just a rewording of the question. However, you might be able to imply the days they mean by figures/calculations next to the stem and leaf diagram.
21 (a)	$\frac{11}{50}$	**1**	Accept any equivalent answer e.g. 0.22, 22% Do **not** accept a ratio 11:50 or in words e.g. 11 out of 50
(b)	3	**1**	
(c)	2	**1**	
22	28	**2**	
	$8 \div \frac{2}{7}$ or better	M1	Accept equivalent methods, e.g.

Question	Answer	Mark	Further Information
			$\frac{8}{1} \div \frac{2}{7}$, $\frac{56}{7} \div \frac{2}{7}$, $8 \times \frac{7}{2}$, 8 × 3.5, 56 ÷ 2 counting on 2 bags is 7 4 bags is 14 8 bags is 28
23	180	**1**	
24	15 [cm] not from wrong working	**1**	Just look out for working 60 – 45 no need to check otherwise
25	5.264 **and** 9400	**2**	
	One correct	B1	
26	30 [minutes]	**2**	
	Any of • 2 [hours] • 2.5 [hours] oe • 120 [minutes] • 150 [minutes] • 0.5 [hours] • Half an hour	B1	
27	16×10^{-2} $175\,000 \div 10^{4}$ 0.48×10^{4} $7 \div 10^{-3}$	**2**	Accept values given as 0.16 17.5 4800 7000 or a combination. Accept $\frac{16}{100}$ for 0.16

Question	Answer	Mark	Further Information
	For one incorrectly placed but the rest in the correct order. **or** for sight of at least three of 4800, 0.16, 7000 or 17.5	B1	Accept $\frac{16}{100}$ for 0.16
28	90° [anticlockwise] **and** translation **and** 6 right, 7 up **or** $\binom{6}{7}$	**3**	Accept equivalents, e.g. 270° clockwise, −270° Award 0 if extra properties or transformations mentioned Award 0 if extra transformations mentioned treat extra properties as choice
	Any two of the three elements correct.	B2	
	For one of the three elements correct. **or** for correctly showing on the grid the image of *A* under a rotation, centre *O*, by 90°, anticlockwise.	B1	Ignore other shapes.