Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

MATHEMATICS **0862/01**

Paper 1 **October 2023**

MARK SCHEME

Maximum Mark: 50

Published

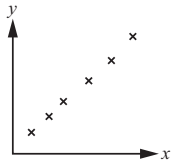
This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Markers were instructed to award marks. It does not indicate the details of the discussions that took place at a Markers' meeting before marking began, which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

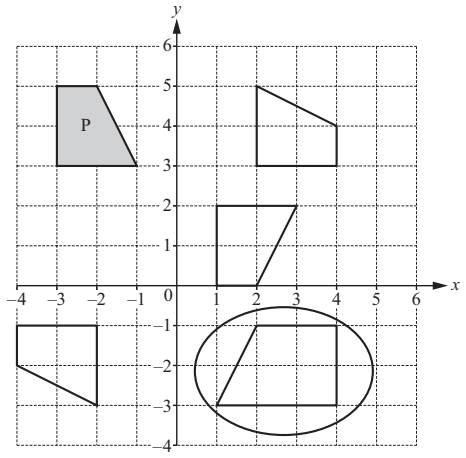
FT	follow through after error
SC	special case mark
cao	correct answer only
dep	dependent
isw	ignore subsequent working
nfww	not from wrong working
oe	or equivalent
soi	seen or implied

This document has **12** pages.

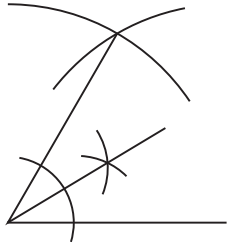
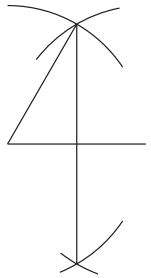
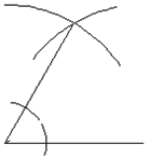
Question	Answer	Marks	Part Marks	Guidance
1	40 (cm^3)	**1**		
2		**1**		Accept any clear indication.
3	(4^3) | $\mathbf{(-2)^3}$ $\mathbf{(-5)^2}$ | $\sqrt[3]{-8}$	**1**		All **three** answers correct for the mark. Accept expressions evaluated, i.e. (4^3) | **–8** **25** | **–2**
4	(<) < > >	**1**		All **three** symbols correct for the mark.
5	(t =) 9	**1**		Do **not** accept $\frac{36}{4}$

Question	Answer	Marks	Part Marks	Guidance
6	$\frac{3}{8}$ oe	**2**	Award 1 mark for correct use of common denominators, e.g. $\left[\frac{9}{8}-\frac{1}{2}=\right]\frac{9}{8}-\frac{4}{8}$ oe or $\frac{5}{8}$ oe **or** $[1-\frac{9}{8}]=\frac{8}{8}-\frac{9}{8}$ oe or $-\frac{1}{8}$ oe **or** $[1]-\frac{9}{8}+\frac{4}{8}$ oe or $[1]-\frac{5}{8}$ **or** $\left[1+\frac{1}{2}=\right]\frac{2}{2}+\frac{1}{2}$ oe or $\frac{3}{2}$ oe **or** 1 – *their* single fraction for $\left(\frac{9}{8}-\frac{1}{2}\right)$ correctly evaluated.	Accept 0.375 or equivalent fractions for 2 marks. For 1 mark, accept equivalent decimal work or other common denominators, e.g. 1.125 – 0.5 or 0.625 , $\frac{18}{16}-\frac{8}{16}$ or $\frac{10}{16}$ 1 – 1.125 or –0.125 1 + 0.5 or 1.5
7	$4 < \sqrt{18} < 5$	**1**		Accept any clear indication.

Question	Answer	Marks	Part Marks	Guidance
8	A correct improved estimate, e.g. 100 (×) 0.6 (=) 60	**1**		Accept improved estimates with at least **one** value rounded or truncated, e.g. • 100 (×) 0.615 (=) 61.5 • 100 (×) 0.5 (=) 50 • 104 (×) 0.6 (=) 62.4 • 104.4 (×) 0.6 (=) 62.64 • 104.3 (×) 0.6 (=) 62.58 • 100 (×) 0.61 (=) 61 • 104 (×) 0.5 (=) 52 • 105 (×) 0.5 (=) 52.5 (e.g. rounding to nearest 5/0.5) Accept with fractions, e.g. 100 (×) $\frac{6}{10}$ (=) 60 Note the answer **must be correct** for *their* rounded values.
9	0.1	**1**		Accept equivalent fractions or 10%.
10	<table><tr><th>Corresponding</th><th>Not corresponding</th></tr><tr><td>**C** **D**</td><td>(A) **B**</td></tr></table>	**1**		All **three** answers correct for the mark. C and D can be in either order in the 'Corresponding angles' column.
11(a)	7×10^6	**1**		
11(b)	5.5×10^{-1} 6.4×10^{-1} 5.5×10^4	**1**		All **three** answers in the correct order for the mark. Accept written as 0.55, 0.64, 55 000 Mark intention.

Question	Answer	Marks	Part Marks	Guidance
12		**1**		Accept any clear indication.
13(a)	☑ ☐ ☑	**1**		Both answers correct for the mark. Accept any clear indication.
13(b)	4	**1**		Accept any clear indication.
14(a)	Any multiple of 4 greater than 7 e.g. 8	**1**		
14(b)	9	**1**		

Question	Answer	Marks	Part Marks	Guidance
15	54	**2**	Award 1 mark for answer figs 54 **or** for $\frac{6\times18}{2}$ or equivalent calculation without decimals (ignoring signs) **or** for correct decimal multiplication or division (ignoring signs), e.g. • [6 × 1.8 =] 10.8 • [6 ÷ 0.2] = 30 • [1.8 ÷ 0.2 =] 9 • *their* (6 × 1.8) ÷ 0.2 correctly evaluated • *their* (6 ÷ 0.2) × 1.8 correctly evaluated.	This is a place value error, e.g. answer 5.4, 540 (must be positive for this mark). e.g 6 × $\frac{18}{10} \div \frac{1}{5}$, $\frac{108}{2}$ An answer of −54 implies 1 mark. For 1 mark, accept any of these, i.e. doing the calculation without the decimal and adjusting at the end, e.g. [*figs* 6 × *figs* 18 =] 10.8 **or** [*figs* 6 ÷ *figs* 2 =] 30 **or** [*figs* 18 ÷ *figs* 2 =] 9 e.g. 108 ÷ –0.2 = –540

Question	Answer	Marks	Part Marks	Guidance
16	A correct construction, e.g. Forms a 60° angle by connecting at least one end of the line segment to the intersection of the arcs **and** constructs the bisector of the 60° angle with construction arcs seen.  **or** constructing the perpendicular bisector of one of the sides of the equilateral triangle **and** producing 30, 60, 90 triangle. 	**2**	Award 1 mark for forming a 60° angle **and** first step for constructing the angle bisector (drawing an arc or pair of arcs, centre the vertex of the angle, that intersect both arms of the angle) **or** fully constructing the angle bisector of any angle **or** constructing the perpendicular bisector of any of the sides of the equilateral triangle (which can be just the given line as full equilateral triangle not required) **or** drawing a perpendicular line (without construction arcs) and using it to correctly construct a 30° angle **with arcs** **or** constructing equal arcs from either end of the given line and the given intersection point.	Accept any correct method. Must show arcs for 1or 2 marks whichever method they use. Note they do **not** need to label which is the 30° angle. e.g. 1 mark for  e.g.  e.g. (note compass setting can be different from original arcs)  Ignore incorrect lines if correct arcs shown.

Question	Answer	Marks	Part Marks	Guidance
17(a)	1000 27	**2**	Award 1 mark for each correct value.	Do **not** accept, e.g. 10^3, 3^3, $\frac{27}{1}$
17(b)	–2	**2**	Award 1 mark for $\sqrt[3]{-64}$ **or** $-4^3 = -64$ **or** $2x = -4$ **or** for answer 2	For 1 mark, do **not** accept • –4 alone • $\sqrt{-64} = -4$
18	☑ ☐ ☐ ☑	**1**		Both answers correct for the mark. Accept any clear indication.
19	(x =) 7 (y =) –3	**3**	Award 2 marks for $x = 7$ **or** $y = -3$ **or** Award 1 mark for a correct method to eliminate one variable **or** for *their* two values satisfying one of the original equations.	Correct method, e.g. Multiplying one or both equations by a constant to get equal coefficients and consistent addition or subtraction that would eliminate a variable. Implied by, e.g. $7x = 49$ or $7y = -21$ **or** making x or y the subject and substituting into the other equation. Implied by $x + 3(2x - 17) = -2$ $2(-2 - 3y) - y = 17$

Question	Answer	Marks	Part Marks	Guidance
20	Smooth curve passing through the points (–3, 11), (–2, 6), (–1, 3), (0, 2), (1, 3), (2, 6) and (3, 11).	**3**	Award 2 marks for at least **five** correct points plotted **or** If 2 marks **not** awarded, Award 1 mark for sight of correct *y*-coordinates for at least **five** points **and** Award 1 mark for plotting at least **five** of *their* points correctly.	11, 6, 3, 2, 3, 6, 11 Seen in table or implied by graph, e.g. a curve or lines passing through (–1.5, 11), (–1, 6), (–0.5, 3), (0, 2), (0.5, 3), (1, 6) and (1.5, 11).
21	80 (cm^2)	**2**	Award 1 mark for sight of 4^2 **or** 16 **or** one rectangle with sides *a* and *b*, where $a \times b = 5$ **and** a second rectangle with sides 4*a* and 4*b*.	Implied by $5 \times 4 \times 4$ Could be drawn or implied by working.
22(a)	50 entered correctly into the stem-and-leaf diagram for Class B.	**2**	Award 1 mark for 56 – 14 **or** 42 **or** 56 – (14 – 8) **or** 50	Do **not** accept 50 with any other values greater than 50 also added.
22(b)	☑ ☐ ☑ ☐	**1**		Both answers correct for the mark. Accept any clear indication.

Question	Answer	Marks	Part Marks	Guidance
23	5 : 3	**3**	Award 2 marks for [length of rectangle B =] 17.5 **or** a ratio equivalent to 5 : 3 **not** in its simplest form **or** Award 1 mark for $\frac{56 \div 2}{5 + 2}$ oe or 1 share is 4 **or** $\frac{56}{5 + 2}$ oe or 1 share is 8 **or** 20 : 8 seen or 40 : 16 seen.	2 marks may be implied by 35 e.g. 17.5 : 10.5, 175 : 105, 35 : 21 etc. oe, e.g. $\frac{56}{14}$, $28 \div 7$, may be implied by 20 May be implied by 40
24	21	**3**	Award 2 marks for $a + 2(2a) = 35$ oe **or** finding $a = 7$ **or** Award 1 mark for 2nd term = $2a$ oe **or** 3rd term = $4a$ oe **or** a group of three numbers k, $2k$, $4k$ seen.	Do **not** accept $2a$ if it is clearly **not** the second term, e.g. $2a$ + *something* = 35 is likely to identify $2a$ as the first term.
25	38 000	**2**	Award 1 mark for $p = 4$ **and** $q = -5$ **or** $p = 4$ **or** $q = -5$ **and** $0.038 \div 10^{p+2q}$ evaluated correctly for *their* p and q.	May be implied by [$0.038 \div$] $10^{4+2\times-5}$ or better, e.g. 10^{-6} $p = 4$ may be implied by [$0.45 \times$] 10^4 $q = -5$ may be implied by [$5070 \times$] 10^{-5} or writing the correct value for p or q above the power of 10 in the question. Cannot leave as a division but do accept in correct standard form.

Question	Answer	Marks	Part Marks	Guidance
26	210(º)	**3**	Award 1 mark for $(7 – 2) \times 180$ oe seen **or** 900 seen **and** Award 1 mark for 6×115 seen **or** 690 seen.	oe, e.g. $(180 – \frac{360}{7}) \times 7$
27	2 **or** 8	**1**		