Cambridge Assessment International Education

Cambridge Lower Secondary Sample Test

For use with curriculum published in September 2020

Mathematics Paper 1

Mark Scheme

Stage 7

Maths_S7_01_MS/10RP

General guidance on marking

Difference in printing

It is suggested that schools check their printed copies for differences in printing that may affect the answers to the questions, for example in measurement questions.

Brackets in mark scheme

When brackets appear in the mark scheme this indicates extra information that is not required but may be given.

For example:

Question	Answer	Mark	Part marks	Guidance
5	19.7 or 19.6(58)	1		

This means that 19.6 is an acceptable truncated answer even though it is not the correct rounded answer.
The … means you can ignore any numbers that follow this; you do not need to check them.

Accept
- any correct rounding of the numbers in the brackets, e.g. 19.66
- truncations beyond the brackets, e.g. 19.65

Do not accept
- 19.68 (since the numbers in brackets do not have to be present but if they are they should be correct).

These tables give general guidelines on marking learner responses that are not specifically mentioned in the mark scheme. Any guidance specifically given in the mark scheme supersedes this guidance.

Number and place value

The table shows various general rules in terms of acceptable decimal answers.

Accept
Accept omission of leading zero if answer is clearly shown, e.g. **.675**
Accept tailing zeros, unless the question has asked for a specific number of decimal places or significant figures, e.g. **0.7000**
Accept a comma as a decimal point if that is the convention that you have taught the learners, e.g. **0,638**

Units

For questions involving quantities, e.g. length, mass, money, duration or time, correct units must be given in the answer. Units are provided on the answer line unless finding the units is part of what is being assessed.

The table shows acceptable and unacceptable versions of the answer 1.85 m.

	Accept	**Do not accept**
If the unit is given on the answer line, e.g. ..... m	Correct conversions, provided the unit is stated unambiguously, e.g. .....185 cm..... m (this is unambiguous since the unit cm comes straight after the answer, voiding the m which is now not next to the answer)	.....185..... m .....1850..... m etc.
If the question states the unit that the answer should be given in, e.g. 'Give your answer in metres'	1.85 1 m 85 cm	185; 1850 Any conversions to other units, e.g. 185 cm

Money

In addition to the rules for units, the table below gives guidance for answers involving money. The table shows acceptable and unacceptable versions of the answer $0.30

	Accept	Do not accept
If the amount is in dollars and cents, the answer should be given to two decimal places	$0.30 For an integer number of dollars it is acceptable not to give any decimal places, e.g. $9 or $9.00	$0.3 $09 or $09.00
If units are not given on the answer line	Any unambiguous indication of the correct amount, e.g. 30 cents; 30 c $0.30; $0-30; $0=30; $00:30	30 or 0.30 without a unit $30; 0.30 cents Ambiguous answers, e.g. $30 cents; $0.30 c; $0.30 cents (as you do not know which unit applies because there are units either side of the number)
If $ is shown on the answer line	All unambiguous indications, e.g. $.....0.30..... $.....0-30..... $.....0=30..... $.....00:30.....	$.....30..... Ambiguous answers, e.g. $.....30 cents.....; $.....0.30 cents..... **unless** units on the answer line have been deleted, e.g. ~~$~~.....30 cents.....
If cents is shown on the answer line	.....30.....cents	.....0.30.....cents Ambiguous answers, e.g. .....$30 .....cents .....$0.30 .....cents **unless** units on the answer line have been deleted, e.g. .....$0.30.....~~cents~~

Duration

In addition to the rules for units, the table below gives guidance for answers involving time durations. The table shows acceptable and unacceptable versions of the answer 2 hours and 30 minutes.

Accept	Do not accept
Any unambiguous indication using any reasonable abbreviations of hours (h, hr, hrs), minutes (m, min, mins) and seconds (s, sec, secs), e.g. 2 hours 30 minutes; 2 h 30 m; 02 h 30 m	Incorrect or ambiguous formats, e.g. 2.30; 2.3; 2.30 hours; 2.30 min; 2 h 3; 2.3 h (this is because this indicates 0.3 of an hour (i.e.18 minutes) rather than 30 minutes)
Any correct conversion with appropriate units, e.g. 2.5 hours; 150 mins **unless** the question specifically asks for time given in hours and minutes	02:30 (as this is a 24-hour clock time, not a time interval) 2.5; 150

Time

The table below gives guidance for answers involving time.

The table shows acceptable and unacceptable versions of the answer 07:30

	Accept	Do not accept
If the answer is required in 24-hour format	Any unambiguous indication of correct answer in numbers, words or a combination of the two, e.g. 07:30 with any separator in place of the colon, e.g. 07 30; 07,30; 07-30; 0730	7:30 7:30 am 7 h 30 m 7:3 730 7.30 pm 073 07.3
If the answer is required in 12-hour format	Any unambiguous indication of correct answer in numbers, words or a combination of the two, e.g. 7:30 am with any separator in place of the colon, e.g. 7 30 am; 7.30 am; 7-30 am 7.30 in the morning Half past seven (o'clock) in the morning Accept am or a.m.	Absence of am or pm 1930 am 7 h 30 m 7:3 730 7.30 pm

Algebra

The table shows acceptable and unacceptable versions of the answer $3x - 2$

Accept	Do not accept
$x3 - 2$; $3 \times x - 2$	$3x + -2$ if it is supposed to be in simplest form
Case change in letters	
Changes in letters as long as there is no ambiguity	

Accept extra brackets when factorising, e.g. $5(x + (3 + y))$
Teachers must mark the final answer given. If a correct answer is seen in working but final answer is given incorrectly then the final answer must be marked. If no answer is given on the answer line then the final line of the working can be taken to be the final answer.

Inequalities

The table shows acceptable and unacceptable versions of various answers.

For the following	Accept	Do not accept
For $6 \leq x < 8$	[6, 8)	$< x <$
For $x \leq -2$	$(-\infty,-2]$	$x < -2$
For $x > 3$	$(3, \infty)$ $3 < x$	Just '3' written on the answer line, even if $x > 3$ appears in the working

Plotting points

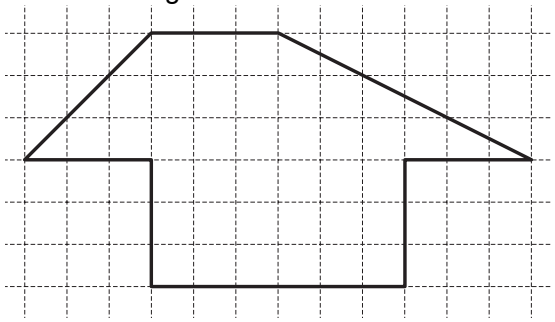
The table shows acceptable and unacceptable ways to plot points.

Accept	Do not accept
Crosses or dots plotted within $\pm\frac{1}{2}$ square of the correct answer The graph line passing through a point implies the point even though there is no cross	A horizontal line and vertical line from the axes meeting at the required point

Question	Answer	Mark	Part Marks	Guidance
1	240(.00)	**1**		**Accept** additional zeros after decimal point.
2	87	**1**		
3(a)	–2	**1**		
3(b)	17	**1**		
4	correct explanation e.g. • the number hasn't changed value **and** (The correct answer is) 4020(.00)	**1**		**Accept** 'he added three zeros at the end'. **Do not accept** 'he added three zeros' alone. **Accept** additional zeros after decimal point.
5	diameter circumference centre radius	**1**		
6	(2.41) **>** (2.401) $\left(1\frac{4}{5}\right)$ **>** (1.75)	**1**		
7	(x =) 252	**2**	Award 1 mark for 360 – (360 – 90 – 114 – 48) or equivalent **or** for sight of 108	

Question	Answer	Mark	Part Marks	Guidance
8	N $\frac{5}{6}$ or equivalent 0 50 (percent)	**3**	Award 2 marks for **three** correct. Award 1 mark for **two** correct.	**Do not accept** in ratio or in words e.g. 5 in 6, 5:6
9(a)	($) 17.50	**1**		**Accept** 17.5
9(b)	(C =) 2.5h or equivalent	**1**		**Accept** 2.5 × h
10	$\frac{10}{11}$	**2**	Award 1 mark for any equivalent fraction to $\frac{10}{11}$ or $\frac{30}{55} \div \frac{33}{55}$ or for $\frac{6}{11} \times \frac{5}{3}$	
11	cylinder	**1**		**Accept** other correct answers e.g. frustum of a cone.
12(a)	x | −2 | −1 | 0 | 1 | 2 y | **− 8** | −4 | 0 | 4 | **8**	**1**		
12(b)	correct graph	**2**	Award 1 mark for **four** or **five** correct plots.	Correct graph has a ruled line passing within 2 mm of (–2, –8) and (2, 8).

Question	Answer	Mark	Part Marks	Guidance
13(a)	60 (cm^3)	**2**	Award 1 mark for $4 \times 5 \times$ figs 3	Figs 3 means an incorrect conversion of units e.g. 0.3, 300, 30 1 mark implied by 600 seen.
13(b)	94 (cm^2)	**3**	Award 2 marks for $2(4 \times 5) + 2(\text{figs } 3 \times 5) + 2(\text{figs } 3 \times 4)$ or equivalent **or** Award 1 mark for **two** correct area calculations of different faces shown.	E.g. 4×5 and figs 3×4
14	**237** 343 905 **558**	**1**		**Accept** any unambiguous indication.
15	(x =) 23	**2**	Award 1 mark for 180 – 90 – 67 or equivalent **or** 67 marked as the unmarked angle in the second triangle **or** 23 marked as the unmarked angle in the first triangle.	
16(a)	$\frac{3}{8}$	**2**	Award 1 mark for $\frac{375}{1000}$ or other equivalent fraction.	
16(b)	6 : 17	**1**		**Do not accept** 6 minutes: 17 minutes

Question	Answer	Mark	Part Marks	Guidance
17	Correct enlargement: 	**2**	Award 1 mark for **four** lengths correct.	**Accept** in any position on grid.
18	60 (km)	**2**	Award 1 mark for recognition that 1 cm = 10 km **or** for sight of 6 000 000	
19	46 (cm)	**2**	Award 1 mark for $4 \times 7 + 4 \times 2 + 2 \times 5$ or equivalent.	
20	$2\ \frac{6}{35}$	**3**	Award 2 marks for $\frac{76}{35}$ or $1\frac{41}{35}$ **or** Award 1 mark for attempt to convert to common denominator with one fraction correct (1) $\frac{21k}{35k}$ or $\frac{20k}{35k}$ or $\frac{56k}{35k}$	i.e. **Accept** equivalent multiples of the fractions.

Question	Answer	Mark	Part Marks	Guidance
21	5	**1**		
22(a)	$3 \times 3 \times 3 = 27$ or equivalent $5 \times 5 = 25$ and $6 \times 6 = 36$ (and 27 is between them)	**1**		**Accept** the square root of 27 is not an integer **Accept** there is no number that squares to make 27
22(b)	64	**1**		
23	The mean remains the same. ☐ The mean changes by 11 cm. ☐ The mean decreases. ☐ The mean increases. ✓	**1**		
24	Shows 108 tiles are needed	**3**	Award 1 mark for correct compound area e.g. $4 \times 3 + 5 \times 3$ **and** Award 1 mark for correctly using the tile length e.g. • *their* area × 4 • 4 tiles make 1 m^2 • dividing their area by 0.25 • doubling all the lengths Both marks implied by $6 \times 14 + 4 \times 6$ or $(4 \times 3 + 5 \times 3) \times 4$	e.g. $7 \times 3 + 2 \times 3$ or $7 \times 5 - 4 \times 2$ Shows that the compound area = 27 m^2 and the area of 100 tiles = 25 m^2 **and** 8 more tiles are needed.

Question	Answer	Mark	Part Marks	Guidance
25(a)	40 (mm)	**1**		
25(b)	London had more rainfall… ☐ Barcelona's highest monthly… ☐ There were 2 months when... ✓ The lowest monthly rainfall… ✓	**2**	Award 1 mark for 1 correct tick and no incorrect **or** for 2 correct and 1 incorrect.	