Cambridge Assessment International Education

Cambridge Lower Secondary Progression Test

Mathematics mark scheme

Stage 7

MATHS_S7_MS_7RP

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	**1**		
Part	**Mark**	**Answer**	**Further Information**
	1	19.7 or 19.6(58…)	
Total	**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 aren't 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 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	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 (i.e. 18 minutes) of an hour rather than 30 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. $5(x + (3 + y))$

Inequalities

The table shows acceptable and unacceptable versions of various answers.

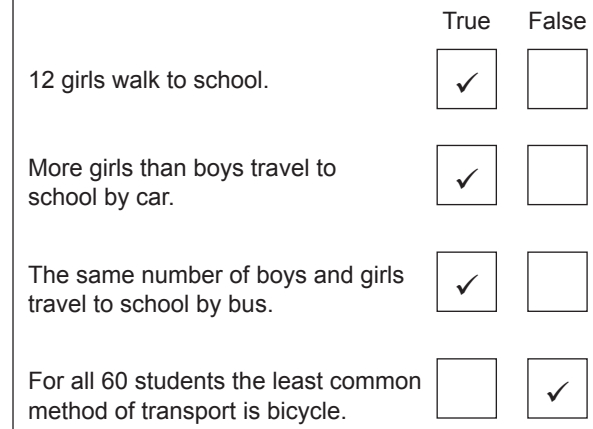
For the following	Accept	Do not accept
For $6 \leqslant x < 8$	[6, 8)	$6 < x < 8$
For $x \leqslant -2$	$(-\infty,-2]$	$x < -2$
For $x > 3$	$(3, \infty)$ $3 < x$	Just '3' written on the answer line, even if $x > 3$ appears in the working

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

Stage 7 Paper 1 Mark scheme

Question	1		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	Walk	
(b)	2		Award 1 mark for three correct.
Total	**3**		

Question	2		
Part	**Mark**	**Answer**	**Further Information**
	1	1.4 0.4 (25%) 40% (0.25) 4%	Rings 25% and 0.25 only
Total	**1**		

Question	3		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	2050	
(b)	1	100	
Total	**2**		

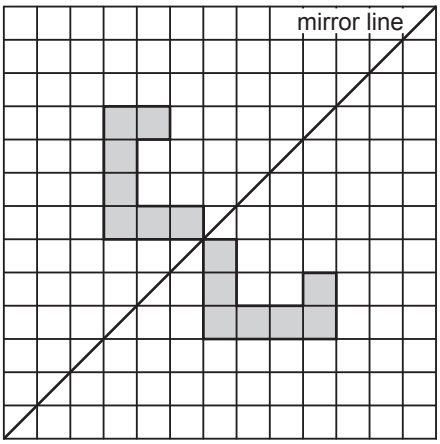
Question	4		
Part	**Mark**	**Answer**	**Further Information**
	1	10	
Total	**1**		

Question	5		
Part	**Mark**	**Answer**	**Further Information**
	1	$\frac{3}{5} = \frac{\boxed{6}}{10} = \frac{9}{\boxed{15}}$	Both correct for 1 mark.
Total	**1**		

Question	6		
Part	**Mark**	**Answer**	**Further Information**
	1	($)105	
Total	**1**		

Question	7		
Part	**Mark**	**Answer**	**Further Information**
	1	64 (g)	
Total	**1**		

Question	8		
Part	**Mark**	**Answer**	**Further Information**
	1	One quarter of **5** 2 is 1 **3** **or** One quarter of **7** 2 is 1 **8**	Both boxes correctly completed for 1 mark.
Total	**1**		

Question	9		
Part	**Mark**	**Answer**	**Further Information**
	1		Image does not have to be shaded. Accept slight inaccuracies in drawing as long as the intention is clear.
Total	**1**		

Question	10		
Part	**Mark**	**Answer**	**Further Information**
	1	(3) (8) 9 (10) 100	All three correct for 1 mark.
Total	**1**		

Question	11		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	Acute ☐ Right ☐ Obtuse ☐ Reflex ✓	
(b)	1	317(°)	Accept angles in the range 316–318°.
Total	**2**		

Question	12		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	2.7	
(b)	1	5.76	
Total	**2**		

Question	13		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	18	
(b)	1	2	
(c)	1	402	Allow a follow-through as 400 + *their* answer to **(b)**.
Total	**3**		

Question	14		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	–1 in correct position on table	
(b)	1	7 (°C)	
(c)	1	5 (°C)	
Total	**3**		

Question	15		
Part	**Mark**	**Answer**	**Further Information**
	2	$\frac{2}{9}$ or equivalent fraction	Award 1 mark for two correct fractions with a common denominator of a multiple of 9.
Total	**2**		

Question	16		
Part	**Mark**	**Answer**	**Further Information**
(a)	2	36(%)	Award 1 mark if any of the following are seen: • $\frac{36}{100}$ *(or 36 out of 100)* • $\frac{18}{50}$ *(or 18 out of 50)* • 0.36
(b)	2	1 : 3	Award 1 mark for any of the following: • 3 : 1 • 2 : 6 • 4 : 12
Total	**4**		

Question	17		
Part	**Mark**	**Answer**	**Further Information**
	1	$7\frac{3}{20}$ or 7.15	Accept equivalent mixed fractions, e.g. $7\frac{6}{40}$ or $7\frac{15}{100}$.
Total	**1**		

Question	18		
Part	**Mark**	**Answer**	**Further Information**
	2	94 (m) 1.255 (l) 0.465 (tonnes)	Award 1 mark for any 2 correct.
Total	**2**		

Question	19		
Part	**Mark**	**Answer**	**Further Information**
	2	$\frac{9}{40}$	Award 1 mark for $\frac{225}{1000}$ seen or equivalent fraction, e.g. $\frac{45}{200}$.
Total	**2**		

Question	20		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	A correct explanation e.g. • There are 6 lengths, each of length h. • Each square has a perimeter of $4h$ but two sides are not part of the perimeter.	Condone without sentences, e.g. • $h + 2h + h + 2h = 6h$ • $4h + 4h – 2h = 6h$ • $h + h + h + h + h + h$ Do not accept $6 \times h$ unless there is indication on the diagram that each exterior side is marked as h.
(b)	1	20	Ignore any units.
Total	**2**		

Question	21		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	$\frac{9}{20}$	Accept equivalent fraction, decimal or percentage, e.g. 0.45. Do not accept answer as a ratio (9:20) or in words.
(b)	1	Whole number values in the ratio 7:3, e.g. • 7 (red) and 3 (green) • 14 (red) and 6 (green) • 21 (red) and 9 (green) • 70 (red) and 30 (green)	Do not accept 3 red and 7 green or $\frac{7}{10}$ and $\frac{3}{10}$.
Total	**2**		

Question	22		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	7	
(b)	1	20	
Total	**2**		

Question	23		
Part	**Mark**	**Answer**	**Further Information**
	2	$2\frac{3}{5}$	Award 1 mark for answer given not in simplest form, e.g. $2\frac{33}{55}$ **or** for $\frac{13}{5}$ seen.
Total	**2**		

Question	24		
Part	**Mark**	**Answer**	**Further Information**
	3	$14.10	Award 2 marks for (*their* 6 slabs) × $2.35 correctly calculated **or** for 6 × $2.35 plus incorrect answer. Award 1 mark for (*their* 6 slabs) × $2.35 incorrectly calculated **or** 6 seen.
Total	**3**		

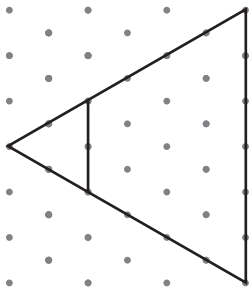
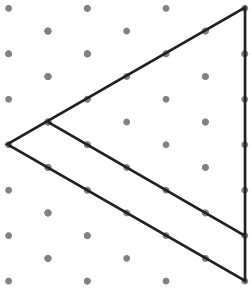
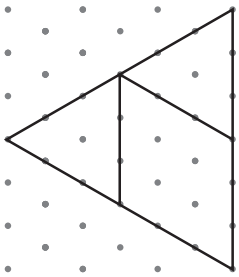
Stage 7 Paper 2 Mark scheme

Question	1		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	48	
(b)	1	19	
(c)	1	25	
Total	**3**		

Question	2		
Part	**Mark**	**Answer**	**Further Information**
	2	52	Award 1 mark if 5 × 9 or 45 is seen.
Total	**2**		

Question	3		
Part	**Mark**	**Answer**	**Further Information**
	1	4	
Total	**1**		

Question	4		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	H(assan) J(amila)	Both correct for 1 mark.
(b)	1	A(nastasia)	
Total	**2**		

Question	5		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	A correct demonstration in any orientation, e.g.  or 	
(b)	1	The correct demonstration in any orientation, e.g. 	
Total	**2**		

Question	6		
Part	**Mark**	**Answer**	**Further Information**
	2	650 (grams)	Award 1 mark for sight of 0.65 **or** incorrect reading from scale correctly converted to grams.
Total	**2**		

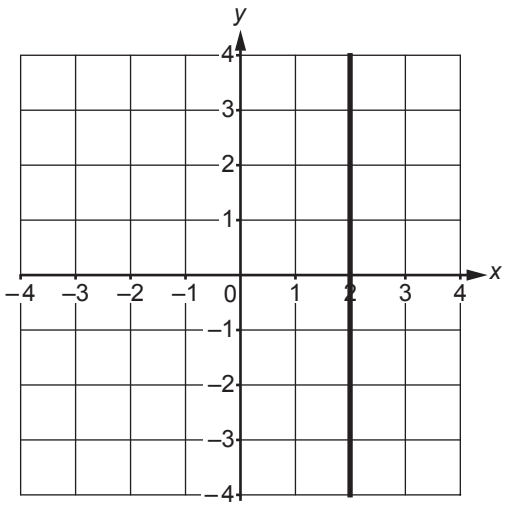
Question	7		
Part	**Mark**	**Answer**	**Further Information**
	1	Triangular prism	
Total	**1**		

Question	8		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	6	
(b)	1	31	
(c)	1	8	
Total	**3**		

Question	9		
Part	**Mark**	**Answer**	**Further Information**
	2	$\begin{array}{rr} & \boxed{4}2.33 \\ - & 14.\boxed{3}9 \\ \hline & 27.9\boxed{4} \end{array}$	Award 1 mark for 2 correct digits.
Total	**2**		

Question	10		
Part	**Mark**	**Answer**	**Further Information**
	2	(Order) 1 (Order) 6 (Order) 3	Award 1 mark if 2 are correct.
Total	**2**		

Question	11		
Part	**Mark**	**Answer**	**Further Information**
	2	7.5 (litres)	Award 1 mark for $\frac{10}{4}$ (= 2.5) **or** $\frac{3}{4}$ of 10.
Total	**2**		

Question	12		
Part	**Mark**	**Answer**	**Further Information**
	1	Correct ruled line extending across the entire grid.  	
Total	**1**		

Question	13		
Part	**Mark**	**Answer**	**Further Information**
	1	A correct explanation, e.g. • 7T have a higher mean • Having a higher range means 7P are less consistent not better; he should have looked at the means. • 7T scored 4 more than 7P on average.	Any equivalent statement making it clear that a higher mean is better. Do not accept just repeating the facts given in the question without comparison, e.g. 7P is 56 and 7T is 60.
Total	**1**		

Question	14		
Part	**Mark**	**Answer**	**Further Information**
	2	4 (hours) 30 (minutes) **and** 21:40	Award 1 mark for each correct answer.
Total	**2**		

Question	15		
Part	**Mark**	**Answer**	**Further Information**
	1	✓ ☐ ✓ ☐	
Total	**1**		

Question	16		
Part	**Mark**	**Answer**	**Further Information**
	2	150 (cm^2)	Award 1 mark for 5 × 5 × 6 **or** for 25 (cm^2) seen (this may be on the diagram).
Total	**2**		

Question	17		
Part	**Mark**	**Answer**	**Further Information**
	1	(1, 2)	
Total	**1**		

Question	18		
Part	**Mark**	**Answer**	**Further Information**
	1	No **and** a correct reason, e.g. • Lily's number could be 1900 and Aiko's number could be 1568 • Aiko's number could be as low as 1500 (and Lily's number must be larger than this) • $1850 \leqslant LN < 1950$ and $1500 \leqslant AN < 2500$	
Total	**1**		

Question	19		
Part	**Mark**	**Answer**	**Further Information**
	1	Days Weeks	Both correct for 1 mark.
Total	**1**		

Question	20		
Part	**Mark**	**Answer**	**Further Information**
	1	(Angle *COD* =) 50(°)	
Total	**1**		

Question	21		
Part	**Mark**	**Answer**	**Further Information**
	1	Green and green.	Both correct for 1 mark.
Total	**1**		

Question	22		
Part	**Mark**	**Answer**	**Further Information**
	1	$4q + 2p$	Allow unsimplified equivalent expressions.
Total	**1**		

Question	23		
Part	**Mark**	**Answer**	**Further Information**
	2	4.1	Award 1 mark for correct method with one arithmetic error.
Total	**2**		

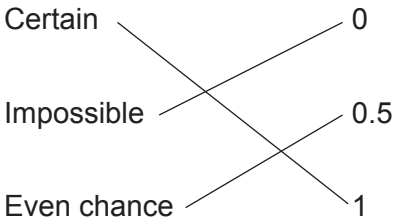
Question	24		
Part	**Mark**	**Answer**	**Further Information**
	2	Shows that percentage of women who own a bicycle is 71(.42…)% and men is 73(.33….)%.	Award 1 mark for 0.71 or 71% or 0.73 or 73%.
Total	**2**		

Question	25		
Part	**Mark**	**Answer**	**Further Information**
	3	3.94 (m^2)	Award 2 marks for 39 400 (cm^2) **or** for $2^2 - 0.3 \times 0.2$ or equivalent methods involving sub-division of the rectangle (working in metres). Award 1 mark for a correct area calculation in either centimetres squared or metres squared **or** for conversion to 0.3 m and 0.2 m.
Total	**3**		

Question	26		
Part	**Mark**	**Answer**	**Further Information**
	2	Complete accurate pentagon with sides of length 6 cm and internal angles of 108°.	Allow a tolerance of 1 mm on the side lengths and 1° on the angles. Award 1 mark for one side and one angle correct.
Total	**2**		

Question	27		
Part	**Mark**	**Answer**	**Further Information**
	1	0.075	Condone –0.075.
Total	**1**		

Stage 7 Paper 3 Mark scheme

Question	Mark	Answer	Further Information
1	1	49	
2	1	–2	
3	1	4	
4	1	8	
5	1	(3, –1)	
6	1		
7	1	20	
8	1	$\frac{7}{20}$	Accept equivalent fractions or 0.35 or 35%.
9	1	8.35	
10	1	$\frac{1}{5}$	Accept equivalent fractions or 0.2 or 20%.
11	1	50(°)	
12	1	$4x = 28$	
13	1	60(%)	
14	1	$\frac{10}{16}$ $\frac{8}{6}$ $\frac{9}{12}$ $\frac{4}{5}$	
15	1	17	
16	1	20 (cm)	
17	1	50 72 33 48 26	Both correct for 1 mark.
18	1	105 (calories)	
19	1	45 (cm^3)	
20	1	0.4	