

Cambridge Secondary 1 Progression Test
Mark scheme

Cambridge
Secondary 1

Mathematics

Stage 8



These tables give general guidelines on marking answers that involve number and place value, and units of length, mass, money or duration. If the mark scheme does not specify the correct answer, refer to these general guidelines.

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 trailing zeros, unless the question has asked for a specific number of decimal places, e.g. 0.7000
Always accept appropriate trailing zeros, e.g. 3.00 m; 5.000 kg
Accept a comma as a decimal point if that is the convention that you have taught the children, e.g. 0,638

Units

For questions involving quantities, e.g. length, mass, time or money, correct units must be given in the answer. The table shows acceptable and unacceptable versions of the answer 1.85 m.

	Correct answer	Also accept	Do not accept
Units are not given on answer line and the question does not specify a unit for the answer	1.85 m	Correct conversions provided the unit is stated, e.g. 1 m 85 cm 185 cm 1850 cm 1850 mm 0.00185 km	1.85 185 m
If the unit is given on the answer line, e.g. m1.85..... m	Correct conversions, provided the unit is stated unambiguously, e.g.185 cm..... m185..... m1850..... m etc.
If the question states the unit that the answer should be given in, e.g. "Give your answer in metres"	1.85 m	1.85 1 m 85 cm	185; 1850 Any conversions to other units, e.g. 185 cm

Money

For questions involving money, it is essential that appropriate units are given in the answer.

The table shows acceptable and unacceptable versions.

	Accept	Do not accept
If the amount is in dollars and cents, the answer should be given to two decimal places.	\$0.30 \$9 or \$9.00	\$09 or \$09.00
If units are not given on answer line	Any unambiguous indication of the correct amount, e.g. 30 cents; 30 c \$0.30; \$0.30 c; \$0.30 cents \$0=30; \$0=30; \$00:30	30 or 0.30 without a unit Incorrect or ambiguous answers, e.g. \$0.3; \$30; \$30 cents; 0.30 cents
If \$ is shown on the answer line	\$..... 0.30 \$..... 0.30 cents Accept all unambiguous indications, as shown above	\$..... 30 \$..... 30 cents (this cannot be accepted because it is ambiguous, but if the dollar sign is deleted it becomes acceptable)
If cents is shown on the answer line 30cents \$0.30cents 0.30cents \$30cents

Duration

Accept any unambiguous method of showing duration and all reasonable abbreviations of hours (h, hr, hrs), minutes (m, min, mins) and seconds (s, sec, secs).

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 5 min 24 sec; 00 h 05 m 24 s	Incorrect or ambiguous formats, e.g. 2.30; 2.3; 2.30 hours; 2.30 min; 2 h 3; 2.3 h
Any correct conversion with appropriate units, e.g. 2.5 hours; 150 mins 324 seconds	2.5; 150 304
Also accept unambiguous digital stopwatch format, e.g. 02:30:00 00:05:24; 05:24 s	Do not accept ambiguous indications, e.g. 02:30 5.24

Time

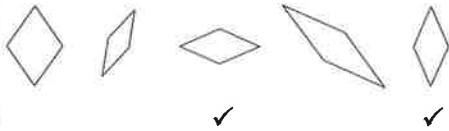
There are many ways to write times, in both numbers and words, and marks should be awarded for any unambiguous method. Accept time written in numbers or words unless there is a specific instruction in the question. Some examples are given in the table.

Accept	Do not accept
Any unambiguous indication of correct answer in numbers, words or a combination of the two, e.g. 07:30; 19:00	Incorrect or ambiguous formats, e.g.
0730; 07 30; 07.30; 07,30; 07-30; 7.30; 730 a.m.; 7.30am; 7.30 in the morning	07.3; 073; 07 3; 730; 73; 7.3; 7.3 am; 7.30 p.m
Half past seven (o'clock) in the morning Thirty minutes past seven am Also accept: O-seven-thirty	
1900; 19 00; 19_00 etc.	19; 190; 19 000; 19.00 am; 7.00 am
Nineteen hundred (hours) Seven o'clock in the afternoon/evening	
Accept correct conversion to 12-hour clock, e.g. 16:42 4.42 p.m.	4.42 am; 0442; 4.42
Sixteen forty two Four-forty-two in the afternoon/evening Four forty two p.m. Forty two (minutes) past four p.m. Eighteen (minutes) to five in the evening	Forty two (minutes) past sixteen Eighteen (minutes) to seventeen
Also accept a combination of numbers and words, e.g. 18 minutes to 5 p.m. 42 minutes past 4 in the afternoon	

Stage 8 Paper 1 Mark Scheme

Question	1		
Part	Mark	Answer	Further Information
(a)	1	387	
(b)	1	265	
Total	2		

Question	2		
Part	Mark	Answer	Further Information
	1	4.96	
Total	1		

Question	3		
Part	Mark	Answer	Further Information
	1		Both must be ticked with no extras. Accept any clear indication.
Total	1		

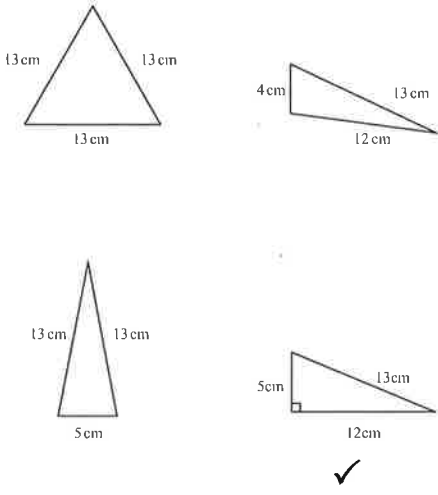
Question	4		
Part	Mark	Answer	Further Information
(a)	1	64	
(b)	1	11	
Total	2		

Question	5		
Part	Mark	Answer	Further Information
(a)	1	0.01	Accept equivalent answer, e.g. $\frac{1}{100}$
(b)	1	0.1	Accept equivalent answer, e.g. $\frac{1}{10}$
Total	2		

Question	6		
Part	Mark	Answer	Further Information
	1	5 (miles)	Accept 4.8 to 5.2 inclusive.
Total	1		

Question	7																		
Part	Mark	Answer	Further Information																
	2	<table border="1"> <thead> <tr> <th></th> <th>Right-handed</th> <th>Left-handed</th> <th>Total</th> </tr> </thead> <tbody> <tr> <th>Boys</th> <td>4</td> <td>10</td> <td>14</td> </tr> <tr> <th>Girls</th> <td>3</td> <td>12</td> <td>15</td> </tr> <tr> <th>Total</th> <td>7</td> <td>22</td> <td>29</td> </tr> </tbody> </table>		Right-handed	Left-handed	Total	Boys	4	10	14	Girls	3	12	15	Total	7	22	29	1 mark for either Boys or Girls row correct.
	Right-handed	Left-handed	Total																
Boys	4	10	14																
Girls	3	12	15																
Total	7	22	29																
Total	2																		

Question	8												
Part	Mark	Answer	Further Information										
	1	<table> <tbody> <tr> <td>$\frac{9}{28}$</td> <td>$\frac{3}{8}$</td> <td>$\frac{24}{64}$</td> <td>$\frac{21}{54}$</td> <td>$\frac{15}{40}$</td> </tr> <tr> <td></td> <td>✓</td> <td>✓</td> <td></td> <td>✓</td> </tr> </tbody> </table>	$\frac{9}{28}$	$\frac{3}{8}$	$\frac{24}{64}$	$\frac{21}{54}$	$\frac{15}{40}$		✓	✓		✓	Accept any clear indication. All three must be correct with no incorrect answers.
$\frac{9}{28}$	$\frac{3}{8}$	$\frac{24}{64}$	$\frac{21}{54}$	$\frac{15}{40}$									
	✓	✓		✓									
Total	1												

Question	9		
Part	Mark	Answer	Further Information
	1		<p>Accept any clear indication.</p> <p>No extras ticked.</p>
Total	1		

Question	10		
Part	Mark	Answer	Further Information
(a)	1	$2x+3$ $2(x-3)$ $3x-2$ $2x-3$ $3(x+2)$ ✓	<p>Accept any clear indication.</p> <p>No extras ticked.</p>
(b)	2	3 (sweets)	<p>1 mark for</p> <p>$x=2x-3$ or $x = \text{answer to (a)}$</p>
Total	3		

Question	11		
Part	Mark	Answer	Further Information
	1	240 (cm ³)	
Total	1		

Question	12		
----------	----	--	--

Part	Mark	Answer	Further Information																					
(a)	2	<table border="1"> <thead> <tr> <th>Pattern number</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th></th> <th>10</th> </tr> </thead> <tbody> <tr> <th>Number of white counters</th> <td>0</td> <td>2</td> <td>4</td> <td>6</td> <td></td> <td>18</td> </tr> <tr> <th>Total number of counters</th> <td>1</td> <td>3</td> <td>5</td> <td>7</td> <td></td> <td>19</td> </tr> </tbody> </table>	Pattern number	1	2	3	4		10	Number of white counters	0	2	4	6		18	Total number of counters	1	3	5	7		19	1 mark for each correct column.
Pattern number	1	2	3	4		10																		
Number of white counters	0	2	4	6		18																		
Total number of counters	1	3	5	7		19																		
(b)	1	$2(n-1)$ or equivalent, e.g. $2n - 2$																						
(c)	1	$2(n-1) + 1 = 2n-1$ or equivalent.	Follow through for (b) +1 if (b) is algebraic.																					
Total	4																							



Question	13		
Part	Mark	Answer	Further Information
(a)	1	B and E, in either order	
(b)	1	B and D, in either order	
Total	2		

Question	14		
Part	Mark	Answer	Further Information
	2	75 (%)	1 mark for $\frac{27}{36} \times 100$ or equivalent method.
Total	2		

Question	15		
Part	Mark	Answer	Further Information
	2	(7,9)	1 mark for each coordinate. or 1 mark for clear method (algebraic or graphical) shown, e.g. evidence that coordinates of midpoint is average of two end points.
Total	2		

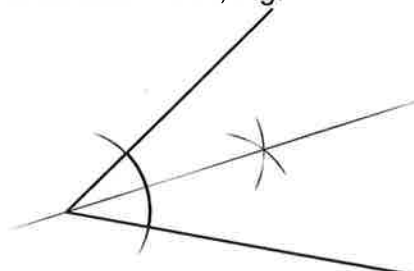
Question	16		
Part	Mark	Answer	Further Information
	2	60% and $\frac{1}{8}$	1 mark for each
Total	2		

Question	17		
Part	Mark	Answer	Further Information
(a)	1	10	
(b)	1	0.03	Accept equivalent answer, e.g. $\frac{3}{100}$
Total	2		

Question	18		
Part	Mark	Answer	Further Information
(a)	1		Accept any clear indication.
(b)	1		Both squares must be identified for the award of the mark. Accept any clear indication.
Total	2		

Question	19		
Part	Mark	Answer	Further Information
(a)	1	28	Do not accept 2 – 30.
(b)	1	22	Do not accept answers on diagram, e.g. 2 ringed.
Total	2		

Question	20		
Part	Mark	Answer	Further Information
	2	$5\frac{4}{15}$	1 mark for common denominator of 15 (or multiple of 15)
Total	2		

Question	21		
Part	Mark	Answer	Further Information
	2	Accurate construction with construction arcs, e.g. 	Accept $\pm 2^\circ$. Correct construction arcs must be seen. 1 mark for evidence of arcs in relevant position.
Total	2		

Question	22		
Part	Mark	Answer	Further Information
	2	Shape B and any valid reason, eg. <ul style="list-style-type: none"> A is $\frac{5}{18}$ B is $\frac{1}{3} = \frac{6}{18}$ 3 is more than $2\frac{1}{2}$ 	Do not award any marks for B without a reason. 1 mark for $\frac{5}{18}$ and $\frac{1}{3}$ Accept any valid method.
Total	2		

Question	23																	
Part	Mark	Answer	Further Information															
	2	<table border="1"> <thead> <tr> <th></th> <th>Diagonals are perpendicular</th> <th>Diagonals have equal length</th> </tr> </thead> <tbody> <tr> <td>Square</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Rhombus</td> <td>✓</td> <td>×</td> </tr> <tr> <td>Rectangle</td> <td>×</td> <td>✓</td> </tr> <tr> <td>Trapezium</td> <td>×</td> <td>×</td> </tr> </tbody> </table>		Diagonals are perpendicular	Diagonals have equal length	Square	✓	✓	Rhombus	✓	×	Rectangle	×	✓	Trapezium	×	×	2 marks for all correct. 1 mark for 2 correct rows or 1 correct column. Do not accept blank cells.
	Diagonals are perpendicular	Diagonals have equal length																
Square	✓	✓																
Rhombus	✓	×																
Rectangle	×	✓																
Trapezium	×	×																
Total	2																	

Question	24		
Part	Mark	Answer	Further Information
(a)	1	4 and 6, in either order	Both must be correct.
(b)	1	6 and 7, in either order	Both must be correct.
Total	2		