

Cambridge Secondary 1 Progression Test

Mark scheme

Cambridge
Secondary 1

Mathematics

Stage 7



These tables give general guidelines on marking answers that involve number and place value, and units of length, mass, money, duration or time. 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, money, duration or time, 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 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; 150 324
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 7 Paper 1 Mark Scheme

Question	1		
Part	Mark	Answer	Further Information
	1	23.6	Correct answer only. Do not allow 23.60
Total	1		

Question	2		
Part	Mark	Answer	Further Information
(a)	1	<i>EAB</i> circled	Allow any clear indication in the list. Accept <i>BAE</i> written. No marks if more than one answer circled.
(b)	1	(irregular) pentagon	Irregular not necessary.
Total	2		

Question	3		
Part	Mark	Answer	Further Information
	1	subtract 5	Allow in symbols, e.g. – 5 or equivalent statements.
Total	1		

Question	4		
Part	Mark	Answer	Further Information
(a)	1	6.3	
(b)	1	76.2	
Total	2		

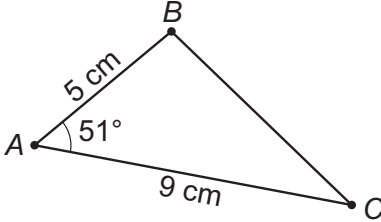
Question	5		
Part	Mark	Answer	Further Information
	1	28	
Total	1		

Question	6		
Part	Mark	Answer	Further Information
	1	<div style="display: flex; flex-direction: column; align-items: flex-start;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">14^2</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">10^2</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">$\sqrt{361}$</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">16^2</div> <div style="border: 1px solid black; padding: 2px;">$\sqrt{289}$</div> </div> <div style="display: flex; flex-direction: column; align-items: flex-start; margin-left: 20px;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">100</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">17</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">256</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">196</div> <div style="border: 1px solid black; padding: 2px;">19</div> </div>	<p>If lines not drawn, allow clear indication of the four correct matchings (10^2 is already given).</p> <p>Do not allow lines which have been attached to more than one box.</p>
Total	1		

Question	7		
Part	Mark	Answer	Further Information
	2	(2), 3, 5, 7, 11, 13, 17, 19, 23, 29	<p>Award 2 marks for the nine remaining correct prime numbers circled (and no others).</p> <p>Award 1 mark for up to two wrong or missing prime numbers.</p> <p>Ignore numbers over 30.</p>
Total	2		

Question	8		
Part	Mark	Answer	Further Information
(a)	1	740	
(b)	1	0.0483	
Total	2		

Question	9		
Part	Mark	Answer	Further Information
	1	<div style="display: flex; flex-direction: column; align-items: flex-start;"> <div style="display: flex; justify-content: space-between; width: 100%;"> 23.4 cm = 234 mm <input checked="" type="checkbox"/> </div> <div style="display: flex; justify-content: space-between; width: 100%;"> 500 ml = 5 l <input type="checkbox"/> </div> <div style="display: flex; justify-content: space-between; width: 100%;"> 1.453 m = 1 m 45 cm 3 mm <input checked="" type="checkbox"/> </div> </div>	Both must be ticked, and no extra ticked for the mark.
Total	1		

Question	10		
Part	Mark	Answer	Further Information
	2	<p>Any orientation. $AB = 5\text{ cm}$ and $AC = 9\text{ cm}$ accuracy $\pm 2\text{ mm}$, Angle $BAC\ 51^\circ \pm 2^\circ$ Labelling not necessary for 2 marks.</p> 	<p>Award 1 mark for two adjacent sides of 5 cm and 9 cm $\pm 2\text{ mm}$. or Award 1 mark for any angle of 51 degrees ± 2 degrees inside a triangle.</p>
Total	2		

Question	11		
Part	Mark	Answer	Further Information
(a)	1	$\frac{1}{5}$ 0.2 <u>2%</u> $\frac{2}{10}$	Allow any clear indication.
(b)	1	$\frac{3}{4}$ <u>3.4</u> 75% $\frac{75}{100}$	No marks if more than one answer circled.
Total	2		

Question	12		
Part	Mark	Answer	Further Information
(a)	1	10 (children)	
(b)	1	35	
(c)	1	$\frac{50}{200}$ (oe)	<p>Allow any equivalent fraction e.g. $\frac{25}{100}$</p> <p>If the fraction is wrongly cancelled ignore subsequent working after the correct fraction is seen.</p> <p>Do not allow a percentage answer i.e. 25% Condone 0.25</p>
Total	3		

Question	13		
Part	Mark	Answer	Further Information
	1	No and a correct reason e.g. because Hamish has multiplied the numerator and the denominator by 3; or you should only multiply the numerator by 3; or $\frac{6}{15}$ is equivalent to $\frac{2}{5}$ (it is not 3 times bigger).	Accept: The correct answer is $\frac{6}{5}$ Do not accept 'No' without a reason. Need a clear indication of "No". or 'No' may be written in the description.
Total	1		

Question	14		
Part	Mark	Answer	Further Information
	2	$\frac{9}{25}$	Award 1 mark for $\frac{36}{100}$ or equivalent fraction that is not fully simplified or for correctly fully simplifying their fraction (which may not be $\frac{36}{100}$) provided simplifying stage shown.
Total	2		

Question	15		
Part	Mark	Answer	Further Information
	1	$2x + 6y$	Accept $2(x + 3y)$
Total	1		

Question	16		
Part	Mark	Answer	Further Information
	1	1 and 3	No marks if extra or missing numbers.
Total	1		

Question	17		
Part	Mark	Answer	Further Information
	1		<p>Allow slight inaccuracy in drawing (e.g. not ruled, one vertex slightly inaccurate) as long as the intention is clear.</p> <p>Ignore any shading or labelling.</p> <p>If more than one triangle is drawn then no marks unless it is clearly indicated which triangle is the chosen answer.</p>
Total	1		

Question	18																		
Part	Mark	Answer	Further Information																
	2	<table border="1"> <tr> <td>24</td><td>✓</td><td>✓</td><td>×</td></tr> <tr> <td>45</td><td>×</td><td>×</td><td>✓</td></tr> <tr> <td>84</td><td>✓</td><td>×</td><td>×</td></tr> <tr> <td>360</td><td>✓</td><td>✓</td><td>✓</td></tr> </table>	24	✓	✓	×	45	×	×	✓	84	✓	×	×	360	✓	✓	✓	<p>Award 2 marks for all correct.</p> <p>Award 1 mark for seven or eight correct.</p> <p>Condone blank spaces as crosses.</p>
24	✓	✓	×																
45	×	×	✓																
84	✓	×	×																
360	✓	✓	✓																
Total	2																		


Question	19		
Part	Mark	Answer	Further Information
	1	$(x =) 5$	<p>Condone extra “x =” on answer line.</p> <p>Do not award marks for embedded answer i.e. $3 \times 5 + 8 = 23$</p>
Total	1		

Question	20		
Part	Mark	Answer	Further Information
(a)	1	<div style="border: 1px solid black; padding: 5px; margin: 0 auto; width: fit-content;"> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">0.61</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px; display: inline-block;">0.21</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">0.4</div> </div> </div>	Award the mark for the correct answer seen anywhere.
(b)	1	<div style="border: 1px solid black; padding: 5px; margin: 0 auto; width: fit-content;"> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">5.15</div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 2px; display: inline-block;">4.3</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">0.85</div> </div> </div>	Award the mark for the correct answer seen anywhere.
Total	2		

Question	21		
Part	Mark	Answer	Further Information
(a)	1	$9 + 12 \div (3 - 1) = 15$	
(b)	1	<p>No and a correct explanation e.g. Yannis has worked out $20 - (2 \times 3 + 5)$; or he has added the 5 and 6 before subtracting; or he didn't take the 6 off the 20 (to get 14) then add 5; or he has done $20 - 6 - 5$; or $20 - 11$ should be $20 - 1$</p>	<p>Accept the statement that the correct answer should be 19.</p> <p>Accept any equivalent statement demonstrating the order of operations is incorrect.</p> <p>Need a clear indication of "No"</p> <p>or 'No' may be written in the description.</p> <p>Do not accept 'No' without a reason.</p>
Total	2		

Question	22		
Part	Mark	Answer	Further Information
(a)	1	4:20 pm	<p>'pm' essential.</p> <p>Accept any symbol as a separator between the hours and minutes e.g. 4.20, 4,20, 4-20, 4 20 etc.</p> <p>Do not accept the time interval 4h 20.</p>
(b)	1	9 (hours) 45 (minutes)	
Total	2		

Question	23		
Part	Mark	Answer	Further Information
(a)	1	$(x =) 20 (^{\circ})$	
(b)	2	$(x =) 135 (^{\circ})$	<p>Award 1 mark for knowing angles in a triangle add up to 180°.</p> <p>or</p> <p>for knowing that one angle in an equilateral triangle is 60°.</p> <p>Evidence of this may be seeing 60 or 75 marked in the correct place on the diagram or seeing the working: $180 - (35 + 70) = 75$ or $180 \div 3 = 60$ or $360 - 60 - 90 - \text{their } 75$</p>
Total	3		

Question	24		
Part	Mark	Answer	Further Information
	1		
Total	1		

Question	25		
Part	Mark	Answer	Further Information
	1	$14x - 35$	
Total	1		

Question	26		
Part	Mark	Answer	Further Information
(a)	1	4	
(b)	1	$\frac{5}{10}$ or equivalent fraction	
Total	2		

Question	27		
Part	Mark	Answer	Further Information
	1	5000 g, 40 kg, 0.2 t, 320 kg	Allow mark if answer written in converted units e.g. 5 kg, 40 kg, 200 kg, 320 kg.
Total	1		

Question	28		
Part	Mark	Answer	Further Information
	2	6 and 10 (in any order)	Award 1 mark for two cards that add up to 16. or Award 1 mark for two cards that make the range of all the cards 4.
Total	2		

Stage 7 Paper 2 Mark Scheme

Question	1		
Part	Mark	Answer	Further Information
	1	3 tenths or $\frac{3}{10}$	Do not accept 0.3
Total	1		

Question	2		
Part	Mark	Answer	Further Information
(a)	1	3 and 7	No marks if any numbers are missing or if there are extra numbers in the lists.
(b)	1	4 and 400	
(c)	1	1 and 3 and 9	
Total	3		

Question	3		
Part	Mark	Answer	Further Information
(a)	1	Any two numbers such that the second is four more than the first.	Answers must be numerical.
(b)	1	Any two numbers such that the second is three times larger than the first.	
Total	2		

Question	4		
Part	Mark	Answer	Further Information
	2	8 (boxes)	Award 1 mark for 7, 10 or 7.2 or 7.3 or better, in the working or on the answer line.
Total	2		

Question	5		
Part	Mark	Answer	Further Information
(a)	1	$234(^{\circ}) \pm 1(^{\circ})$	Check the size of the angle in your copy of the test and allow $\pm 1^{\circ}$.
(b)	1	$68(\text{mm}) \pm 1(\text{mm})$	Check the length of the side in your copy of the test and allow $\pm 1 \text{ mm}$.
Total	2		

Question	6		
Part	Mark	Answer	Further Information
(a)	1	7.6 (kg)	If both answers in grams penalise only once. For part (b), accept follow through from their answer in part (a).
(b)	1	6.7 (kg)	
Total	2		

Question	7		
Part	Mark	Answer	Further Information
	1	(\$) 135	
Total	1		

Question	8		
Part	Mark	Answer	Further Information
	1	159	
Total	1		

Question	9				
Part	Mark	Answer			Further Information
(a)	2	Number of children	Tally	Frequency	Award 2 marks for four correct frequencies. Award 1 mark for two correct frequencies or all correct tally lines drawn.
		1 – 10		3	
		11 – 20		5	
		21 – 30		9	
		31 – 40		3	
(b)	1	21 – 30			Follow through from their frequencies. Allow in words 21 to 30 Both ends of the class are required. Do not accept, e.g. 21– or 9
Total	3				

Question	10				
Part	Mark	Answer			Further Information
(a)	1	9 : 6			or equivalent e.g. 3 : 2
(b)	1	5 : 3			Correct answer only.
(c)	2	45			Award 2 marks for correct answer only. Award 1 mark for correct method, e.g. $150 \div (7 + 3)$ or Award 1 mark for the answer 105 : 45 (as the decision that the correct answer is 45 has not been made).
Total	4				

Question	11				
Part	Mark	Answer			Further Information
	1	60			
Total	1				

Question	12		
Part	Mark	Answer	Further Information
(a)	1	75	
(b)	1	Any valid comparison, e.g. they have the same range, the median pulse rate after exercise is higher or pulse rates are higher after exercise.	Must be a comparison. Condone 'pulse rates after exercise are high'. Allow converses e.g. the median pulse rate before exercise is lower.
Total	2		

Question	13		
Part	Mark	Answer	Further Information
	1		Accept any clear indication, e.g. cross may be placed next to the incorrect angle.
Total	1		

Question	14		
Part	Mark	Answer	Further Information
(a)	1	50 (cm)	
(b)	2	104 (cm ²)	Award 1 mark for either (6 × 14) + (4 × 5) or (6 × 10) + (4 × 11) or (11 × 14) – (10 × 5) or equivalent working.
Total	3		

Question	15		
Part	Mark	Answer	Further Information
(a)	1	75 (%)	
(b)	1	No and a reason, e.g. Stefan wins 70% of his matches (and 70% is lower than 75%).	Follow through from their percentage answer from part (a). Do not accept 'No' without a reason. Do not accept 'although he won more matches he also played more' as this doesn't necessarily imply a lower/ higher percentage.
Total	2		

Question	16		
Part	Mark	Answer	Further Information
	2		Award 1 mark for 3 or 4 correct matchings.
Total	2		

Question	17		
Part	Mark	Answer	Further Information
(a)	1	1, 2, 3, 4, and 5	Allow repeated numbers. If students pick numbers that are not from 1 to 10 penalise this only once.
(b)	1	3 or more even numbers	
(c)	1	Any 5 numbers from 1, 2, 4, 5, 7, 8 or 10	
Total	3		

Question	18		
Part	Mark	Answer	Further Information
(a)	1	0.375	If students go on to round or truncate this decimal on the answer line, award the marks if 0.375 is seen in the working.
(b)	1	True <input type="checkbox"/> False <input checked="" type="checkbox"/> True <input type="checkbox"/> False <input checked="" type="checkbox"/>	
Total	2		

Question	19		
Part	Mark	Answer	Further Information
(a)	1	(5 , 9)	
(b)	1	(0, -1)	
(c)	1	No and a valid reason e.g. if you double the x co-ordinate and subtract 1 you get 59 or $2 \times 30 - 1 = 59$ not 61 or $(61 + 1) \div 2 = 31$ not 30 or (30, 61) would be on the line $y = 2x + 1$ or she has added 1 to $2x$ rather than taken 1 away or it should be (30,59)	Allow equivalent wording. Do not accept 'No' without a reason.
Total	3		

Question	20		
Part	Mark	Answer	Further Information
(a)	1	40 (%)	
(b)	1	100 (g)	
(c)	1	20 (%)	
Total	3		

Question	21		
Part	Mark	Answer	Further Information
	2		<p>Award 1 mark for a <i>congruent rotated</i> quadrilateral in any position, rotated in any direction by any angle. Second mark for the quadrilateral in the correct position.</p> <p>Allow slight inaccuracy in drawing as long as the intention is clear. Ignore any shading Labelling not required.</p> <p>If two diagrams or more are drawn, mark all according to the mark scheme then award the lowest mark.</p>
Total	2		

Stage 7 Paper 3 Mark Scheme

Question	Mark	Answer
1	$\frac{1}{2}$	7
2	$\frac{1}{2}$	$2n$ or $2 \times n$ (Capital letters acceptable)
3	$\frac{1}{2}$	74
4	$\frac{1}{2}$	3
5	$\frac{1}{2}$	2.8
6	$\frac{1}{2}$	40°
7	$\frac{1}{2}$	$\frac{17}{5}$
8	$\frac{1}{2}$	9
9	$\frac{1}{2}$	12
10	$\frac{1}{2}$	11
11	$\frac{1}{2}$	7.95
12	$\frac{1}{2}$	240
13	$\frac{1}{2}$	2, 3 and 4 (all three required)
14	$\frac{1}{2}$	3
15	$\frac{1}{2}$	$\frac{2}{7}$
16	$\frac{1}{2}$	$11\frac{7}{20}$
17	$\frac{1}{2}$	Rectangle clearly indicated
18	$\frac{1}{2}$	54
19	$\frac{1}{2}$	15
20	$\frac{1}{2}$	30%

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