Cambridge Secondary 1 Progression Test

Mark scheme

Cambridge Secondary 1

Mathematics

Stage 7

DC (NH/SW) 85945/12RP

CAMBRIDGE International Examinations

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 tailing zeros, unless the question has asked for a specific number of decimal places, e.g. **0.7000**
Always accept appropriate tailing 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. ..... m	.....1.85..... m	Correct conversions, provided the unit is stated unambiguously, e.g. .....185 cm..... m	.....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 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	.....**30**.....cents .....**\$0.30** .....cents	.....**0.30**.....cents .....**\$30** .....cents

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

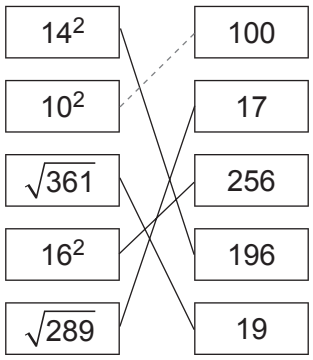
Question	1		
Part	**Mark**	**Answer**	**Further Information**
	1	23.6	Correct answer only. Do not allow 23.60
Total	**1**		

Question	2		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	*EAB* circled	Allow any clear indication in the list. Accept *BAE* 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**		

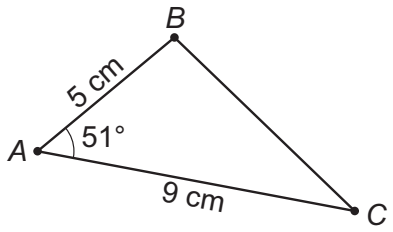
Question	5		
Part	**Mark**	**Answer**	**Further Information**
	1	28	
Total	**1**		

Question	6		
Part	**Mark**	**Answer**	**Further Information**
	1		If lines not drawn, allow clear indication of the four correct matchings (10^2 is already given). Do not allow lines which have been attached to more than one box.
Total	**1**		

Question	7		
Part	**Mark**	**Answer**	**Further Information**
	2	(2), 3, 5, 7, 11, 13,17, 19, 23, 29	Award 2 marks for the nine remaining correct prime numbers circled (and no others). Award 1 mark for up to two wrong or missing prime numbers. Ignore numbers over 30.
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	23.4 cm = 234 mm ✓ 500 ml = 5 l ☐ 1.453 m = 1 m 45 cm 3 mm ✓	Both must be ticked, and no extra ticked for the mark.
Total	**1**		

Question	10		
Part	**Mark**	**Answer**	**Further Information**
	2	Any orientation. *AB* = 5 cm **and** *AC* = 9 cm accuracy ± 2 mm, Angle *BAC* 51° ± 2° Labelling not necessary for 2 marks.  	Award 1 mark for two adjacent sides of 5 cm and 9 cm ± 2 mm. **or** Award 1 mark for any angle of 51 degrees ± 2 degrees inside a triangle.
Total	**2**		

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

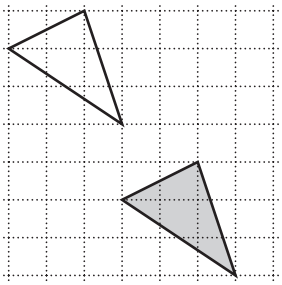
Question	12		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	10 (children)	
(b)	1	35	
(c)	1	$\frac{50}{200}$ (oe)	Allow any equivalent fraction e.g. $\frac{25}{100}$ If the fraction is wrongly cancelled ignore subsequent working after the correct fraction is seen. Do not allow a percentage answer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

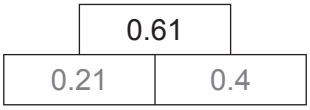
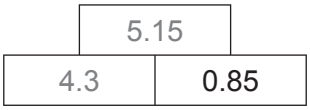
Question	15		
Part	**Mark**	**Answer**	**Further Information**
	1	$2x + 6y$	Accept $2(x + 3y)$
Total	**1**		

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		Allow slight inaccuracy in drawing (e.g. not ruled, one vertex slightly inaccurate) as long as the intention is clear. Ignore any shading or labelling. If more than one triangle is drawn then no marks unless it is clearly indicated which triangle is the chosen answer.
Total	**1**		

Question	18		
Part	**Mark**	**Answer**	**Further Information**
	2	24 ✓ ✓ × 45 × × ✓ 84 ✓ × × 360 ✓ ✓ ✓	Award 2 marks for all correct. Award 1 mark for seven or eight correct. Condone blank spaces as crosses.
Total	**2**		

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

Question	20		
Part	**Mark**	**Answer**	**Further Information**
(a)	1		Award the mark for the correct answer seen anywhere.
(b)	1		Award the mark for the correct answer seen anywhere.
Total	**2**		

Question	21		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	9 + 12 ÷ (3 – 1) = 15	
(b)	1	No **and** a correct explanation e.g. Yannis has worked out 20 – (2 × 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	Accept the statement that the correct answer should be 19. Accept any equivalent statement demonstrating the order of operations is incorrect. Need a clear indication of "No" **or** 'No' may be written in the description. Do not accept 'No' without a reason.
Total	**2**		

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

Question	23		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	(x =) 20 (°)	
(b)	2	(x =) 135 (°)	Award 1 mark for knowing angles in a triangle add up to 180°. **or** for knowing that one angle in an equilateral triangle is 60°. 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 ÷ 3 = 60 **or** 360 – 60 – 90 – their 75
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**		

[Turn over

Question	5		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	234(°) ± 1(°)	Check the size of the angle in your copy of the test and allow ± 1°.
(b)	1	68 (mm) ± 1 (mm)	Check the length of the side in your copy of the test and allow ± 1 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**		

<table>
<tr><td>Question</td><td>9</td><td></td><td></td></tr>
<tr><td>Part</td><td>Mark</td><td>Answer</td><td>Further Information</td></tr>
<tr><td>(a)</td><td>2</td><td>
<table>
<tr><th>Number of children</th><th>Tally</th><th>Frequency</th></tr>
<tr><td>1 – 10</td><td>|||</td><td>3</td></tr>
<tr><td>11 – 20</td><td>𝍸</td><td>5</td></tr>
<tr><td>21 – 30</td><td>𝍸 ||||</td><td>9</td></tr>
<tr><td>31 – 40</td><td>|||</td><td>3</td></tr>
</table>
</td><td>Award 2 marks for four correct frequencies.

Award 1 mark for two correct frequencies or all correct tally lines drawn.</td></tr>
<tr><td>(b)</td><td>1</td><td>21 – 30</td><td>Follow through from their frequencies.

Allow in words 21 to 30

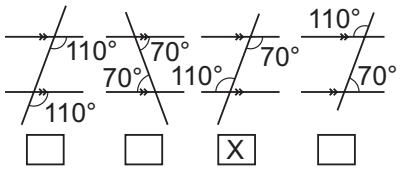
Both ends of the class are required.

Do not accept, e.g. 21– or 9</td></tr>
<tr><td>Total</td><td>3</td><td></td><td></td></tr>
</table>

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 ÷ (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**		

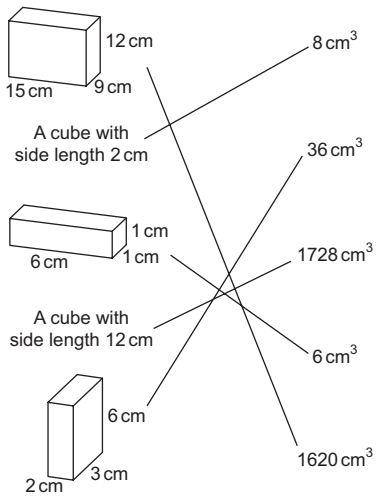
Question	**11**		
Part	**Mark**	**Answer**	**Further Information**
	1	60	
Total	**1**		

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 high**er or** pulse rates are high**er** 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**		

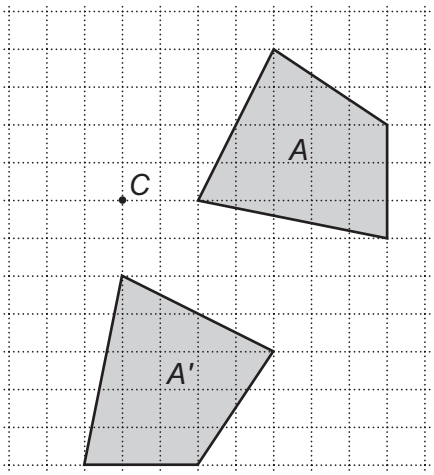
Question	16		
Part	**Mark**	**Answer**	**Further Information**
	2		Award 1 mark for 3 or 4 correct matchings.
Total	**2**		

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 ☐ False ☑ True ☐ False ☑	Both need to be correct for the mark.
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 × 30 – 1 = 59 not 61 **or** (61 + 1) ÷ 2 = 31 not 30 **or** (30, 61) would be on the line $y = 2x + 1$ **or** she has added 1 to 2*x* 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		Award 1 mark for a *congruent rotated* quadrilateral in any position, rotated in any direction by any angle. Second mark for the quadrilateral in the correct position. Allow slight inaccuracy in drawing as long as the intention is clear. Ignore any shading Labelling not required. If two diagrams or more are drawn, mark all according to the mark scheme then award the lowest mark.
Total	**2**		

Stage 7 Paper 3 Mark Scheme

Question	Mark	Answer
1	½	7
2	½	$2n$ or $2 \times n$ (Capital letters acceptable)
3	½	74
4	½	3
5	½	2.8
6	½	40^{o}
7	½	$\frac{17}{5}$
8	½	9
9	½	12
10	½	11
11	½	7.95
12	½	240
13	½	2, 3 and 4 (all three required)
14	½	3
15	½	$\frac{2}{7}$
16	½	$11\frac{7}{20}$
17	½	Rectangle clearly indicated
18	½	54
19	½	15
20	½	30%