Cambridge Secondary 1 Progression Test

Mark scheme

Cambridge Secondary 1

Mathematics

Stage 8

DC (CW/SW) 90762/9RP

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 8 Paper 1 Mark Scheme

Question	1		
Part	**Mark**	**Answer**	**Further Information**
	1	10^7	Accept 1×10^7 Do not accept incorrect use of standard form, e.g. 10×10^6
Total	1		

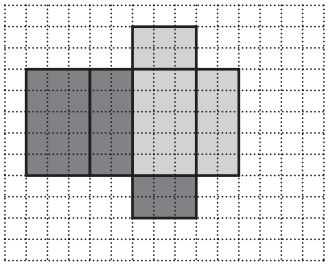
Question	2		
Part	**Mark**	**Answer**	**Further Information**
	1	120	
Total	1		

Question	3		
Part	**Mark**	**Answer**	**Further Information**
	1	**Colour door 1** / **Colour door 2** Red / Red Red / Blue Red / Green Blue / Red Blue / Blue Blue / Green Green / Red Green / Blue Green / Green	i.e. the other 5 ways in any order. Letters or words acceptable.
Total	1		

Question	4		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	8	Accept -8
(b)	1	0.1	Accept $\frac{1}{10}$
Total	2		

Question	5		
Part	**Mark**	**Answer**	**Further Information**
	1	$9c + 4d$ **or** $4d + 9c$	
Total	1		

Question	6		
Part	**Mark**	**Answer**	**Further Information**
	1	13.5	Accept $13\frac{1}{2}$ but not $13\frac{3}{6}$ Do not accept 13r3
Total	1		

Question	7		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	3 faces added in correct places. e.g. 	Other arrangements possible.
(b)	2	30 cm^3	Award 1 mark for 30 and Award 1 mark for cm^3
Total	3		

Question	8		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	$1\frac{3}{4}$	
(b)	1	$3\frac{3}{5}$	
Total	2		

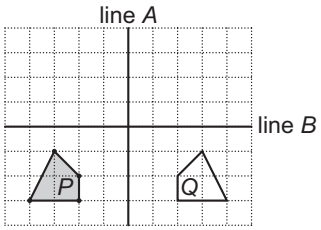
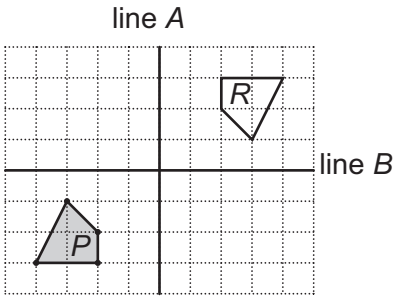
Question	9		
Part	**Mark**	**Answer**	**Further Information**
(a)	**1**	36 (cm)	
(b)	**2**	45 (cm^2)	Award 1 mark for correct method seen e.g. 3 × 3 × 5 **or** Award 1 mark for sight of 9
Total	**3**		

Question	10		
Part	**Mark**	**Answer**	**Further Information**
	1	10 – 3 × **(**4 – 2**)** + 1 = 5	One set of brackets around 4 – 2
Total	**1**		

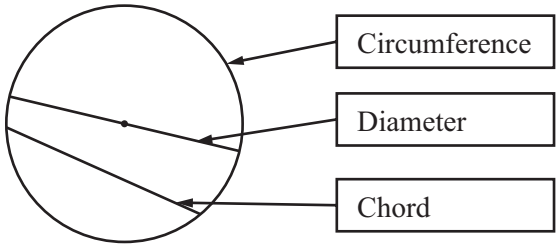
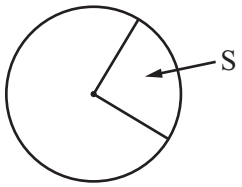
Question	11		
Part	**Mark**	**Answer**	**Further Information**
	1	True ✓ False ☐ ✓	Award 1 mark if both are correct.
Total	**1**		

Question	12		
Part	**Mark**	**Answer**	**Further Information**
(a)	**1**	2 | 7 9 3 | 1 4 | 3 7 8 5 | 0 0	Must be in correct order.
(b)	**1**	4	Allow follow through from ordered stem and leaf in **(a)**.
Total	**2**		

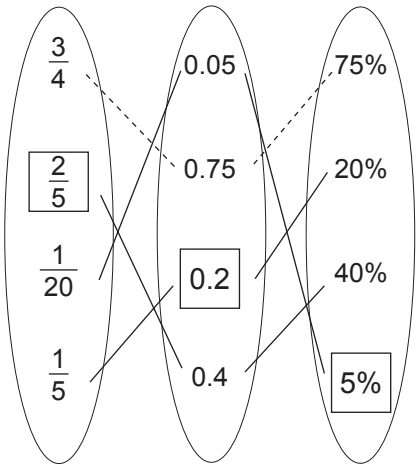
Question	13		
Part	**Mark**	**Answer**	**Further Information**
(a)	**1**	$3b + 4 = 5b - 12$	Accept any correct simplified equation, e.g. $2b = 16$, $b = 8$
(b)	**1**	8	Correct answer only. Award mark if answer seen in part **(a)**.
Total	**2**		

Question	14		
Part	**Mark**	**Answer**	**Further Information**
(a)	**1**		Note: It is not necessary for both shapes to be labelled if it is obvious which is which.
(b)	**1**		Allow correct reflection of their *Q*.
(c)	**1**	reflection (rotation) translation enlargement	Accept any correct indication.
Total	**3**		

Question	15		
Part	**Mark**	**Answer**	**Further Information**
	1	$13^2 - 12^2 = 5^2$	Accept answer written elsewhere.
Total	**1**		

Question	16		
Part	**Mark**	**Answer**	**Further Information**
(a)	**1**		All 3 correct needed
(b)	**1**		The 2 radii to be drawn anywhere at an angle of 90 ± 5° **and** label to minor sector. Accept a clear indication of a right angle.
Total	**2**		

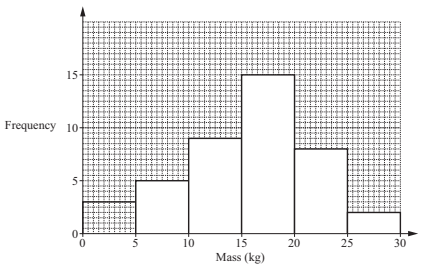
Question	17		
Part	**Mark**	**Answer**	**Further Information**
	2	15 **and** 30 **and** 45	Award 2 marks for the **three** answers in any order. Award 1 mark for 90 ÷ 6 **or** 15 seen **or** two correct answers.
Total	**2**		

Question	18		
Part	**Mark**	**Answer**	**Further Information**
	2	$\frac{2}{5}$ **and** 0.2 **and** 5 (%) **and** connecting lines, ie 	Allow equivalent fractions to $\frac{2}{5}$ Award 1 mark for at least 2 correct values correct. **or** Award 1 mark for at least 4 lines (out of 6) drawn correctly.
Total	**2**		

Question	19		
Part	**Mark**	**Answer**	**Further Information**
	2	40	Award 1 mark for 64 seen for a^3 or 24 seen for bc^3
Total	**2**		

Question	20		
Part	**Mark**	**Answer**	**Further Information**
	2	1 : 14	Ignore any units given in answer. Award 1 mark for 250 : 3500 **or** $\frac{1}{4}$: 3.5 **or** for a correct partial simplification e.g. 25 : 350 **or** Allow 1 mark for answer of 14 : 1
Total	**2**		

Question	21		
Part	**Mark**	**Answer**	**Further Information**
	1	**>** **and** **<**	Award 1 mark if both are correct.
Total	**1**		

Question	22		
Part	**Mark**	**Answer**	**Further Information**
	2		Award 1 mark for all heights correct. **or** Award 1 mark for bars at correct place on Mass axis with no gaps.
Total	**2**		

Question	23		
Part	**Mark**	**Answer**	**Further Information**
	2		Award 1 mark for at least 4 values correctly placed.
Total	**2**		

	History	Geography	Total
Boys	7	11	18
Girls	10	4	14
Total	17	15	32

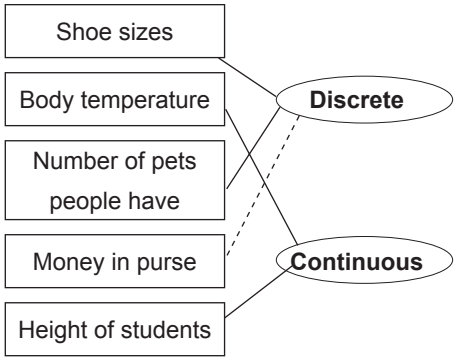
Question	24		
Part	**Mark**	**Answer**	**Further Information**
	2	$12p$	Award 1 mark for formula for area of trapezium seen or implied, e.g. $A = \frac{h}{2}(a + b)$ **or** $A = \frac{8}{2}(2p+p)$
Total	**2**		

Question	25		
Part	**Mark**	**Answer**	**Further Information**
	2	Calculations to show that the fractions add to greater than one **and** relating that to the context. e.g. $\frac{15}{30} + \frac{10}{30} + \frac{6}{30} = \frac{31}{30}$ is more than one whole so no money leftover.	For 2 marks allow decimals, e.g. 1 – 0.5 – 0.33 – 0.2 = -0.03 **and** negative means no money left. Award 1 mark for a complete calculation with no further explanation e.g. $1 - \frac{1}{2} - \frac{1}{3} - \frac{1}{5} = -\frac{1}{30}$
Total	**2**		

Question	26		
Part	**Mark**	**Answer**	**Further Information**
	1	No **and** correct reason, e.g. No, answer should be 3740 **or** No, 1122÷30 = 37.4 **or** No, 11.22÷0.3 = 37.4	Accept any equivalent reason, e.g. Dividing by a smaller decimal than in the given equation, gives a bigger answer. **or** Dividing by a number less than one produces an answer greater than 1122.
Total	**1**		

Stage 8 Paper 2 Mark Scheme

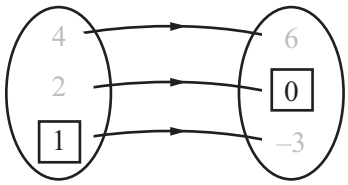
Question	1		
Part	**Mark**	**Answer**	**Further Information**
	1	$5m$ m^5 $\frac{m}{5}$ 5^m	Accept any correct indication.
Total	1		

Question	2		
Part	**Mark**	**Answer**	**Further Information**
	1		All 4 lines correct for the mark.
Total	1		

Question	3		
Part	**Mark**	**Answer**	**Further Information**
	2	4 (32c stamps) **and** 1 (22c stamps)	Award 1 mark for any multiple of 32 **and** 22 seen.
Total	2		

Question	4		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	203	
(b)	1	203.50	
Total	2		

[Turn over

Question	5		
Part	**Mark**	**Answer**	**Further Information**
(a)	**1**	$3(x - 2)$ or $3x - 6$	
(b)	**1**		Both needed for the mark.
Total	**2**		

Question	6		
Part	**Mark**	**Answer**	**Further Information**
	1	$y = 7$ $y = 0$ (circled) $y = 4x$ $x = 3$	Accept any correct indication.
Total	**1**		

Question	7		
Part	**Mark**	**Answer**	**Further Information**
	1	60 (cents)	
Total	**1**		

Question	8		
Part	**Mark**	**Answer**	**Further Information**
(a)	**1**	74 511 (74 475) 75 000 73 496 73 000 70 000 (73 627)	Accept any correct indication of both numbers chosen.
(b)	**2**	99 724	Award 1 mark for 93 200 × 1.07 or equivalent **or** for 6 524 seen.
Total	**3**		

Question	9		
Part	**Mark**	**Answer**	**Further Information**
(a)	**2**	Answer in the range 28.26 to 28.3 (cm)	Award one mark for correct method, e.g. • 2 x π x 4.5 • 2 x 3.14 x 4.5 • 9 x π
(b)	**2**	Answer in the range 63.58 to 63.62 (cm^2)	Award 1 mark for correct method, e.g. • π x 4.5 x 4.5 • 3.14 x 4.5 x 4.5 • π x 4.5^2
Total	**4**		

Question	10		
Part	**Mark**	**Answer**	**Further Information**
(a)	**1**	<table><tr><td>*x*</td><td>–2</td><td>–1</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>*y*</td><td>9</td><td>7</td><td>5</td><td>3</td><td>1</td><td>–1</td><td>–3</td></tr></table>	All four values needed.
(b)	**1**	Ruled line from (–2, 9) to (4, –3), individual points need not be seen.	
Total	**2**		

Question	11		
Part	**Mark**	**Answer**	**Further Information**
	2	Correct triangle drawn with *AB*, *AC* and *BC* ± 2 mm of correct length **and** correct pair of arcs seen at *A*, *B* or *C.*	Allow any orientation of triangle. Award 1 mark for a correct triangle with no or incorrect arcs.
Total	**2**		

Question	12		
Part	**Mark**	**Answer**	**Further Information**
(a)	**1**	$21t - 28$ **or** $7(3t - 4)$	
(b)	**2**	$(t =)\ 4$	Award 1 mark for correct first step. e.g. $\frac{56}{7} = 3t - 4$ **or** $21t = 56 + 28$ Allow ft 1 mark for correct first step of rearranging their part **(a)** as long as of form $at \pm b$
Total	**3**		

Question	13		
Part	**Mark**	**Answer**	**Further Information**
	2	1st line: angles on a straight line (add to 180°) **and** 2nd line: alternate angles **and** 3rd line: alternate angles	Allow 1 mark for at least 1 correct line.
Total	**2**		

Question	14		
Part	**Mark**	**Answer**	**Further Information**
(a)	**1**	$(S =)\ 0.6\ md$ or equivalent	For 0.6, accept equivalent fractions, e.g. $\frac{6}{10}, \frac{3}{5}, \frac{60}{100}, \frac{30}{50}$ Condone × signs Do not allow a % symbol in the formula.
(b)	**1**	$(m =)\ 35.2$	
(c)	**1**	$(S =)\ 73.9(2)$	Accept follow through from their **(a)** and **(b)** providing the formula contains an m and d.
Total	**3**		

Question	15		
Part	**Mark**	**Answer**	**Further Information**
	2	Square, Square, Rhombus Rhombus, Rhombus Rectangle	Written in any order within each column. Award 1 mark for any three names correct.
Total	2		

Question	16		
Part	**Mark**	**Answer**	**Further Information**
(a)	2	Monty because mean for Suresh = 29	Must have correct name and explanation for 2 marks Award 1 mark for either correct addition to 203 or for a correct division by 7.
(b)	1	Suresh's because Range = 27	
Total	3		

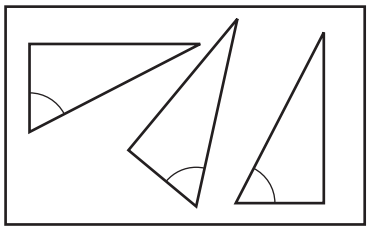
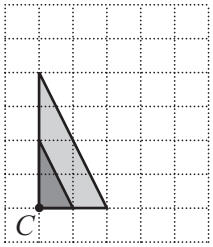
Question	17		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	$2^3 \times 3^2 \times 7$	Accept $2 \times 2 \times 2 \times 3 \times 3 \times 7$
(b) (i)	1	12 (cm)	Accept $2^2 \times 3$
(ii)	2	83.3(%)	Accept 83%, 83.33 or better Award 1 mark for sight of $\frac{420}{504}$
Total	4		

Question	18		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	18	
(b) (i)	1	62	
(ii)	1	Explanation, e.g. There are 4 seats at each table and 2 end seats.	
Total	3		

Question	19		
Part	**Mark**	**Answer**	**Further Information**
	2	(–1, – 1.5)	Award 1 mark for each co-ordinate **or** evidence of correct method for 1 co-ordinate.
Total	**2**		

Question	20		
Part	**Mark**	**Answer**	**Further Information**
(a)	**1**	No **and** same proportion / fraction but there are different amounts of men and women in survey.	Accept No **and** 75 men and 120 women.
(b)	**1**	10 (people)	
Total	**2**		

Stage 8 Paper 3 Mark Scheme

Question	Mark	Answer
1	½	(5 =) $\sqrt[3]{125}$
2	½	a function (an equation) an expression a term Accept any clear indication of the correct answer.
3	½	3, 7, 11, **15**, 19, **23** in this order.
4	½	(+) 12 **and** – 12, plus sign not necessary, accept written as ±12
5	½	3.34
6	½	$\frac{5}{8}$ or equivalent
7	½	0.3 or $\frac{3}{10}$
8	½	 All 3 angles marked.
9	½	80 (c)
10	½	10:45, accept answers between 10:40 and 10:50
11	½	$\frac{3}{4}$, 0.76, $\frac{4}{5}$ Accept equivalent fractions or decimals.
12	½	$6x^2 - 8xy$
13	½	65
14	½	10, accept any number that rounds to 10
15	½	31
16	½	 points joined with reasonable freehand line.
17	½	50 (°)
18	½	20
19	½	$2n - 1$
20	½	1.5 hours or 1 hour 30 minutes or 90 minutes Do **not** accept 1.30 hours.

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