Cambridge Assessment International Education

Cambridge Lower Secondary Sample Test

For use with curriculum published in September 2020

Mathematics Paper 2

Mark Scheme

Stage 9

Question	Answer	Mark	Part Marks	Guidance
1	x^9	**1**		
2	–2 ✓	**1**		
3	24.5 or $24\frac{1}{2}$ **and** 25.5 or $25\frac{1}{2}$	**2**	Award 1 mark for **one** correct.	. **Accept** $25.4\dot{9}$
4	☐ ✓ ✓ ☐	**1**		Both boxes ticked and no others.
5(a)	108(°)	**2**	Award 1 mark for $\frac{360}{5}$ **or** 72 **or** for $(5 - 2) \times 180$ or 540	
5(b)	2 5 (6)	**1**		
6	2309(.07…) (cm^3)	**2**	Award 1 mark for $\pi \times 7^2 \times 15$	**Accept** answers between 2307.9 and 2309.4 **Accept** 2310

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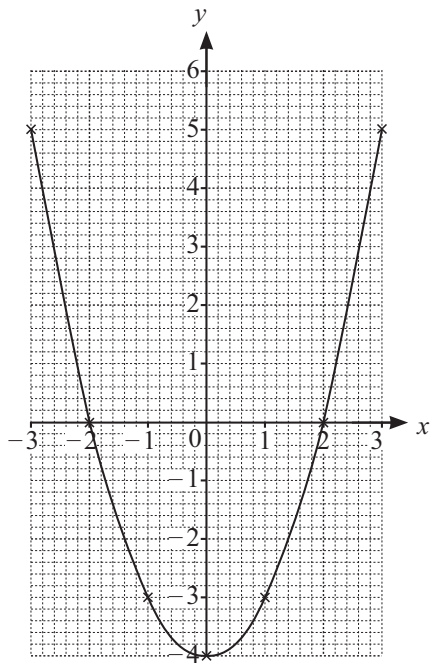
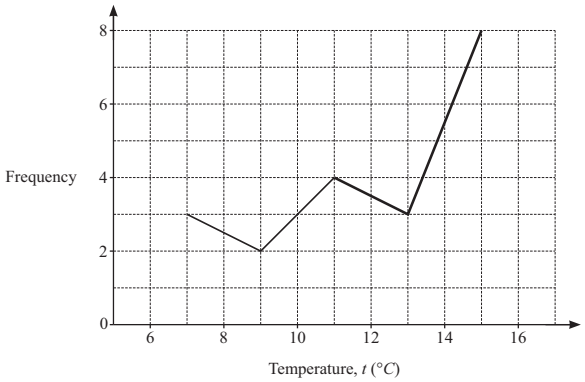
7(a)	<table><tr><td>–3</td><td>–2</td><td>–1</td><td>0</td><td>1</td><td>2</td><td>3</td></tr><tr><td>5</td><td>0</td><td>–3</td><td>–4</td><td>–3</td><td>0</td><td>5</td></tr></table>	**1**		
7(b)		**2**	Award 1 mark for plotting **six** or **seven** of **their** points correctly.	

Question	Answer	Mark	Part Marks	Guidance
8(a)		**1**		
8(b)	$12 \leq t < 14$	**1**		
8(c)	10 or 9.9(99…)(°C)	**1**		
9(a)	$y = x + 2$ $y = 2x - 3$ $2y = x - 3$ $x = 2$	**1**		
9(b)	Both lines cross the y-axis at 1 **or** Both have a y-intercept of 1	**1**		**Accept** correct alternatives, e.g. They have the same y-intercept. They both have a positive y-intercept.
10(a)	3	**1**		
10(b)	(0, 0)	**1**		
11	63.2 or 63.2…(cm)	**3**	Award 2 marks for $\frac{2 \times \pi \times 12.3}{2}$ (+ 12.3×2) or equivalent **or** Award 1 mark for $2 \times \pi \times 12.3$	**Accept** answer of 63 with correct working for 3 marks implied by $\frac{123\pi}{10}$ or 38.6… implied by $\frac{123\pi}{5}$ or 77.2 to 77.3

Question	Answer	Mark	Part Marks	Guidance
12	125 (minutes)	**2**	Award 1 mark for $300 \times \frac{5}{12}$ **or** for 300×5 (= 1500)	
13	Ticks A and gives supporting figures 728 and 722	**3**	Award 2 marks for 650×1.12 **or** $650 + 650 \times 0.12$ **or** 728 and 760×0.95 **or** $760 - 760 \times 0.05$ **or** 722 **or** Award 1 mark for 650×1.12 **or** $650 + 650 \times 0.12$ **or** 728 **or** 760×0.95 **or** $760 - 760 \times 0.05$ **or** 722	**Accept** equivalent methods for finding the percentage increase or decrease.
14	2	**3**	Award 2 marks for $(1^2 - 7) + (2^2 - 7) + (3^2 - 7) + (4^2 - 7)$ **or** better Award 1 mark for **either** $(a =)$ 29 – 36 **or** –7 **or** $(1^2 + \textit{their } a) + (2^2 + \textit{their } a) + (3^2 + \textit{their } a) + (4^2 + \textit{their } a)$	***their*** a can be any non-zero number.

Question	Answer	Mark	Part Marks	Guidance
15	$(t =)\frac{5(w+1)}{2}$ or equivalent	**2**	Award 1 mark for a correct first step of **either** $w + 1 = \frac{2t}{5}$ **or** $5w = 2t - 5$	**Accept** $(t =)\ \frac{w+1}{0.4}$ for 2 marks. **Accept** an unsimplified answer, e.g. $t = \frac{w+1}{2/5}$ scores 1 mark.
16	A complete demonstration showing correct expansion of both brackets, e.g. $20y - 36y^2 + 36y^2 - 6y$ and $14y$	**2**	Award 1 mark for $20y - 36y^2$ **or** for $36y^2 - 6y$ **or** for $20y - 6y$	
17	70(°)	**3**	Award 1 mark for (*ABC* or *ADC* =) $\frac{360 - 78 - 38}{2}$ **or** 122(°) **and** Award 1 mark for (angle *EBC* =) 180 – 90 – 38 **or** 52(°) **or** 360 – 90 – *their ADC* – 78	May be seen on diagram.

Question	Answer	Mark	Part Marks	Guidance
18	0.6 or 60% or $\frac{3}{5}$	**2**	Award 1 mark for 0.25 + 0.05 + 0.1 (= 0.4) **or** 25(%) + 5(%) + 10(%) (= 40) **or** 1 – *their* 0.4	**Accept** equivalent fractions. For the award of 1 mark all probabilities should be expressed in a consistent form. Implied by the four numbers in their table adding up to 1
19	42	**3**	Award 1 mark for correct method to find number of counters Angelique gets from Bag A, e.g. $56 \times \frac{3}{3+5}$ (= 21) Award 1 mark **either** for correct method to find the number of counters Hassan gets from Bag B, e.g. (45 – *their* 21) $\times \frac{3}{4}$ or 18 **or** for correct method to find the total number of counters in Bag B, e.g. (45 – *their* 21) $\times \frac{3+4}{4}$	

Question	Answer	Mark	Part Marks	Guidance
20	A correct comparison of both the means and ranges in context, e.g. The boys jumped further (on average than the girls). **and** The distances jumped by the boys were more varied/ less consistent / more spread out.	**2**	Award 1 mark for a correct comparison of either the means or the ranges in context.	Answers should refer to distances or jumps. **Accept** equivalent answers, e.g. The girls (generally) jump shorter distances. **Do not allow** answers which do not give a contextual interpretation of mean or range, e.g. • The distances jumped by the boys have a larger mean. • The girls' jumps have a smaller range.
21	An answer that implies that children in the orchestra will not be representative of all children, e.g. • She should also ask children not in the orchestra. • Children in the orchestra are more likely to like music.	**1**		

Question	Answer	Mark	Part Marks	Guidance
22	411 (cm^2)	**4**	Award 3 marks for $AF = 3.5$ cm **and** correct method to find shaded area, e.g. $24 \times 18 - 0.5 \times 3.5 \times 12$ Award 2 marks for $AF = 3.5$ cm **or** Award 2 marks for a correct method to find shaded area using a value for AF found after attempting Pythagoras' theorem Award 1 mark for $AF^2 + (24/2)^2 = 12.5^2$ **or** Award 1 mark for correct method to find shaded area using any value for AF	The shaded area could be divided into a rectangle and a trapezium. $AF = \sqrt{12.5^2 - (24 \div 2)^2}$