OXFORD CAMBRIDGE AND RSA EXAMINATIONS

General Certificate of Secondary Education

MATHEMATICS A A502/02

Unit B (Higher)

Specimen Mark Scheme

The maximum mark for this paper is **60**.

This document consists of **5** printed pages and **3** blank pages.

1		Fully correct line drawn	**3**	**M2** for line with gradient 3 **M1** for line with intercept $^{-}2$
2	(a)	Fully correct reflection	**2**	**M1** for reflection in axes or $x = 2$
	(b)	Fully correct rotation	**2**	**M1** for any $\frac{1}{4}$ turn or any rotation with centre (0, 0)
	(c)	Fully correct translation	**2**	**M1** for any translation 5 left or 2 up
	(d)	Fully correct enlargement	**2**	**M1** for any enlargement with –ve SF
	(e)	**A** The potato (print) cannot be turned over	**1** **1**	
3		143	**4**	**M3** for 720 – (242 + 65 + 90 + 90 + 90) **M2** for 720 and 577 **M1** for 720 or 577 Accept any valid alternative method
4 *		Fully correct pollen count v humidity scatter graph drawn. Carmela is incorrect as pollen count only affected by humidity. Comments may include pollen count v temperature = no correlation, pollen count v humidity = negative correlation. Correct and clear language throughout.	**5-6**	For lower mark – there might be a slight slip in the plotting of the graph e.g. one point plotted incorrectly **or** minor errors in spelling, punctuation or grammar.
		Attempt at pollen count v humidity scatter graph. Considers both graphs and offers a comment on whether Carmela is correct. Comments will be in form of sentences or bullet points.	**3-4**	For lower mark – incomplete graph e.g. missing labels, 2 or 3 points incorrectly plotted **or** errors in their conclusion(s) **or** completely accurate graph but with no comments **or** a few errors in spelling, punctuation or grammar.
		Attempt at temperature v humidity scatter graph or inappropriate types of diagram drawn **and** a comment made. Little structure or poor spelling, punctuation or grammar.	**1-2**	For lower mark – graph not drawn but comment made with poor spelling, punctuation and grammar.
		No relevant comment or graph drawn	**0**	

5		Any estimation of load/weight using given numbers All four correct* *Correct means either sensible approx. and correct calculations shown, or one of the following answers for each team: Team 1: 20, 21 Team 2: 22, 24 Team 3: 14, 16 Team 4: 20, 17 Most efficient Team 2 Least efficient Team 3	**M1** **A3** **A1**	 **A2** for two or three values correct* or **A1** for one value correct* **cao**
6	(a)	$x < 5{\cdot}5$	**2**	**B1** for $4x < 22$ or $x = 5{\cdot}5$
	(b)	Correct line indicated	**1**	ft *their* inequality in (a)
7		£8·50 loss	**4**	**B3** for 25 – 16·50 or £8·50 **M2** for clear method on correct line at *their* 28 or £16·50 **M1** for clear method on correct line at £25 or 28 If **M0** then **SC2** for £12 gain **or SC1** for 37
8		Manipulate equations to get equal coefficients Add or subtract as appropriate Substitute to find other variable $x = 3$, $y = -4$	**M1** **M1** **M1** **A1**	Rearrange one equation in terms of other variable Substitute into other equation Both If **M0** then **SC1** for non-algebraic method
9	(a)	Sum opposite angles ≠ 180°	**1**	Allow 129 + 40 ≠ 180 or 56 + 135 ≠ 180
	(b)	69° Tangents from point to circumference equal 69° Alternate segment	**1** **1** **1** **1**	 Allow ADC is an isosceles triangle ft *their* answer for angle x
10		1:8 or 12% or 13% or 12·5%	**3**	**B2** for 1/8 **M1** for any vert./horizontal calculation seen

11	(a)	(i) $\frac{3}{4}$	**3**	**M2** for $\frac{1}{4}$ and 3 **M1** for $\frac{1}{4}$ or 3
		(ii) 25	**1**	
		(iii) 14	**2**	**M1** for $\sqrt{7} \times \sqrt{4} \times \sqrt{7}$ or $\sqrt{7} \times 4 \times 7$ or $\sqrt{196}$
	(b)	4^{11} or 2^{22}	**1**	
	(c)	$\frac{53}{99}$	**2**	**M1** for $100x = 53{\cdot}53.... - x = 0{\cdot}53....$
12	(a)	(i) **a** + **b** oe	**1**	
		(ii) 2**b** – $\frac{1}{2}$ **a** oe	**2**	**B1** for vector with either 2**b** or $\frac{1}{2}$ **a**
	(b)	R marked at correct point	**1**	

Assessment Objectives and Functional Elements Grid

GCSE MATHEMATICS A

A502/02: Unit B (Higher)

Qn	Topic	AO1	AO2	AO3	Functional
1	Straight lines	3			
2	Transformations	8	2		
3	Angles in polygons		4		
4	Scatter graph			6	6
5	Estimation		5		5
6	Inequality	3			
7	Exchange rate graph			4	4
8	Simultaneous equations	4			
9	Circle theorems	5			
10	Road sign gradient		3		3
11	Indices, surds, recurring	9			
12	Vectors		4		
	TOTAL	32	18	10	18

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