



Oxford Cambridge and RSA Examinations  
**General Certificate of Secondary Education**

**MATHEMATICS B**

**J567/01**

Paper 1 (Foundation tier)

**Specimen Mark Scheme**

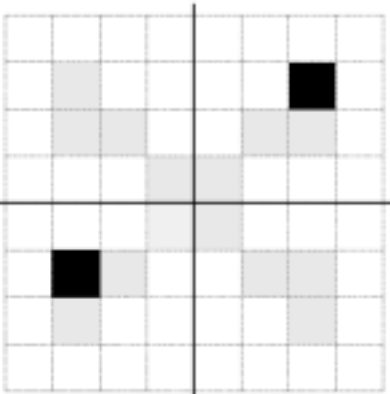
The maximum mark for this Paper is **100**.

This document consists of **7** printed pages and **1** blank page.

SP (SLM) T12103

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1	(a)(i) Pentagon indicated	1	
	(ii) Octagon indicated	1	
	(iii) Equilateral triangle ticked	1	
	(b)	2	cao  <b>B1</b> for one correct with only one error or omission
			
2	(a)(i) Evens	1	
	(ii) Impossible	1	
	(ii) Unlikely	1	
	(b)(i) 5 symbols drawn	1	Clear intention
	(ii) 3	1	
3	(a)(i) 6300	1	cao
	(ii) 1370	1	cao
	(iii) 9500	1	cao
	(iv) 7.5	1	Accept 7.50
	(b)(i) 4800	1	cao
	(ii) 2980	1	cao
4	(a) C plotted	1	cao
	(b) Isosceles [triangle]	1	
5	(a)(i) Norwich	1	
	(ii) South	1	Accept S
	(b) 120	2	<b>M1</b> attempt at $75 \div 5$ soi by 15
	(c)(i) 68	1	cao
	(ii) 257	3	<b>B2</b> for $98 + 159$ <b>B1</b> for <i>their</i> $98 + \text{their } 159$

<b>6</b>	<b>(a)</b> 13.5 oe	<b>2</b>	<b>M1</b> for <i>their</i> $9 \times 1.5$ OR <b>B1</b> fig 9 seen																						
	<b>(b)</b> 11.2	<b>2</b>	<b>M1</b> attempt to multiply 4 by 2.8																						
	<b>(c)</b> 2 to 2.4 inclusive	<b>1</b>	Accept in centimetres																						
	<b>(d)</b> 650	<b>2</b>	<b>M1</b> 650 or 1500 seen OR <b>SC1</b> 0.65																						
<b>7</b>	<b>(a)</b> 72	<b>2</b>	<b>B1</b> 8 and 9 seen																						
	<b>(b)</b> Complete correct method which, without errors, would lead to the correct answer.	<b>M1</b>	The three most common methods are below:  <u>Grid method:</u> <table border="1" style="margin-left: 40px;"> <tbody> <tr> <td>4000</td> <td>1200</td> <td>140</td> </tr> <tr> <td>1600</td> <td>480</td> <td>56</td> </tr> </tbody> </table> <u>Lattice/Gelosia method:</u> <table border="1" style="margin-left: 40px; text-align: center;"> <tbody> <tr> <td style="border: none;">0</td> <td style="border: none;">1</td> <td style="border: none;">1</td> </tr> <tr> <td style="border: none;">4</td> <td style="border: none;">2</td> <td style="border: none;">4</td> </tr> <tr> <td style="border: none;">1</td> <td style="border: none;">4</td> <td style="border: none;">5</td> </tr> <tr> <td style="border: none;">6</td> <td style="border: none;">8</td> <td style="border: none;">6</td> </tr> </tbody> </table> <div style="margin-left: 40px; text-align: center;"> <table style="border: none;"> <tr> <td style="padding: 0 10px;">7</td> <td style="padding: 0 10px;">4</td> <td style="padding: 0 10px;">7</td> <td style="padding: 0 10px;">6</td> </tr> </table> </div> <u>Long Multiplication method:</u> $\begin{array}{r} 267 \\ \underline{28} \times \\ 2136 \\ \underline{5340} \\ 7476 \end{array}$	4000	1200	140	1600	480	56	0	1	1	4	2	4	1	4	5	6	8	6	7	4	7	6
4000	1200	140																							
1600	480	56																							
0	1	1																							
4	2	4																							
1	4	5																							
6	8	6																							
7	4	7	6																						
	2136, 5340, 196, 1680 or 5600 seen, or 4 correct values from 4000, 1200, 140, 1600, 480, 56 seen, or 4 correct boxes in grid method, or 4 correct boxes in lattice/Gelosia method and attempt to add.  7476	<b>B1</b>																							
		<b>A1</b>	<b>SC1</b> 7476 without working																						
	<b>(c)</b> 17 without wrong working	<b>2</b>	<b>B1</b> 25 or 8 seen																						

<b>8</b>	<b>(a)</b> 27 Add 4 [to previous term] oe	1 1	Or correct formula for $n$ th term $(4n + 3)$
	<b>(b)</b> 395	1	
	<b>(c)</b> No because (eg) terms are all odd numbers	1	
<b>9</b>	<b>(a)</b> 21	2	<b>M1</b> for correct working seen, eg finds 10% [soi by 3·5] and attempt to multiply <i>their</i> 3·5 by 6
	<b>(b)</b> 80	2	<b>B1</b> for $\frac{8}{10}$ or $\frac{80}{100}$ seen
<b>10</b>	<b>(a)</b> $\bar{1}$	2	<b>M1</b> Attempt to find mean of $\bar{4}$ and 2
	<b>(b)</b> $\bar{5}$ or $\bar{4}$ and a non-negative number $\neq 2$ or 3	2	<b>B1</b> if only one condition met
	<b>(c)</b> Any correct answer	2	<b>B1</b> if one error
<b>11</b>	<b>(a)</b> $C = 2\cdot5[0] + 1\cdot25m$	2	<b>B1</b> C omitted
	<b>(b)</b> 7·50 www	2	<b>B1</b> $4 \times 1\cdot25$ or £5 seen
	<b>(c)</b> 6 www	2	<b>B1</b> $3x = 21 - 3$ or better
<b>12</b>	<b>(a)</b> C to D	1	
	<b>(b)</b> A to B	1	
<b>13</b>	<b>(a)</b> 2m	1	
	<b>(b)</b> 180	2	<b>M1</b> $12 \times \textit{their} 15$
	<b>(c)</b> 30	3	<b>M1</b> $(\textit{their} 180) \div (\textit{their} 20 \times 30)$ <b>M1</b> $\frac{30}{100}$

<p><b>14</b> *</p>	<p>Complete correct calculation to find <math>18\frac{3}{8}</math> pints required, and rounds up to 20. Indicates with correct and clear language that as the bottles have the same unit cost it does not matter which combination is chosen, and gives at least one combination for 20 pints.</p> <p>Correct method but incomplete or containing a minor error - but if followed without errors, would lead to <math>\frac{147}{8}</math> or <math>18\frac{3}{8}</math>. Provides a brief comment saying that it does not matter which combination is chosen but without a clear reason. Gives a combination for <i>their</i> answer.</p> <p>Correctly converts both mixed numbers to improper fractions, or correctly multiplies one of the mixed numbers by 7 and attempts to multiply the result by the other fraction. Weak comment concerning the price of the bottles.</p> <p>No relevant calculations or comments.</p>	<p><b>6-5</b></p> <p><b>4-3</b></p> <p><b>2-1</b></p> <p><b>0</b></p>	<p>For the lower mark, there may be one minor slip in the arithmetic at any stage, <b>or</b> weaker explanation.</p> <p><u>Examples of combinations:</u></p> <p>6, 6, 6, 2 6, 6, 4, 4 6, 6, 2, 2, 2, 2 6, 4, 4, 4, 2 6, 4, 4, 2, 2, 2 6, 2, 2, 2, 2, 2, 2 4, 4, 2, 2, 2, 2, 2 2, 2, 2, 2, 2, 2, 2, 2, 2</p> <p><u>Example of working:</u></p> <p><math>1\frac{1}{2} = \frac{3}{2}</math> and <math>1\frac{3}{4} = \frac{7}{4}</math></p> <p><math>\frac{3}{2} \times \frac{7}{4} = \frac{21}{8}</math></p> <p><math>\frac{21}{8} \times 7 \text{ (days)} = \frac{147}{8}</math></p> <p><math>18\frac{3}{8}</math></p> <p>For the lower mark, more than one error is present in the working, <b>or</b> comment is missing or has several errors in spelling, punctuation and grammar, <b>or</b> no combination for <i>their</i> answer.</p> <p>For the lower mark, as <b>2</b> but with errors in the conversion or in the multiplication, <b>or</b> limited comment which may have poor spelling, punctuation and grammar.</p>
<p><b>15</b></p>	<p>9:09 www</p>	<p><b>4</b></p>	<p><b>B2</b> 24 identified (as LCM) OR <b>B1</b> Multiples of 6 and 8 (or prime factors) seen AND <b>M1</b> 8:45 + <i>their</i> 24 minutes</p>
<p><b>16</b></p>	<p><math>\frac{20 \times 4}{0.5} = 160</math></p>	<p><b>2</b></p>	<p><b>M1</b> Two of the three numbers correctly rounded to 1sf</p>

17	(a) Correct rotation to triangle with vertices $(1, -2), (4, -2), (1, -4)$	3	<b>B2</b> for rotation $90^\circ$ anticlockwise about origin OR <b>B1</b> for rotation $90^\circ$ clockwise about incorrect centre
	(b) Translation $\begin{bmatrix} 2 \\ 1 \end{bmatrix}$	1 1	Accept "2 right 1 up"
18	(a) $-2, -3$	2	<b>B1</b> each
	(b) All points plotted accurately and joined with a smooth curve	2	<b>M1</b> five points plotted accurately Allow $\pm 1$ mm accuracy ft <i>their</i> table for 2 marks
	(c) $1.6 - 1.8$ and $-1.6 - -1.8$	2	<b>B1</b> each ft <i>their</i> smooth curve ( $\pm 0.1$ )
19	$h = \frac{P+5}{3}$ oe	2	<b>M1</b> $h = \frac{P-5}{3}$ or $h = \frac{P}{3} - 5$
20	Correct perpendicular bisector of AB with correct construction arcs <b>and</b> part circle radius 6 cm, centre A <b>and</b> correct region shaded	4	Allow tolerance of $\pm 2$ mm in measurements and allow circle to be sufficiently drawn to intersect the perpendicular bisector of AB twice. <b>M1</b> for perpendicular bisector of AB with correct construction arcs AND <b>M2</b> part circle radius 6 cm centre A OR <b>M1</b> 12 miles = 6 cm soi OR <b>SC1</b> part circle radius 12 cm centre A
21	(a) She is [extremely] unlikely to get the same result [because of a large number of combinations]	1	Accept any correct statement including 'she will <b>not</b> get the same results'
	(b) Not very close together, or not close to 0.2, or '2' occurs twice more than '1'  Too few trials to be sure, or she needs to do more trials oe	1  1	Accept any correct statement  Accept any correct statement 'More numbered balls' is not enough

**Paper Total : 100 marks**

## Assessment Objectives and Functional Elements Grid

GCSE MATHEMATICS B

J567/01

Mathematics B Paper 1 (Foundation Tier)

	Topic	Context	Ref	AO1	AO2	AO3	Functional
1	Recognising shapes, symmetry		FIG4, FBG7, FIG7	5			
2	Probability vocabulary, pictogram	Cards	FIS1, FIS4	5			
3	Powers of 10		FIN3, FIN1	6			
4	Coordinates		FIA4	2			
5	Maps, function machines, two-way tables	British cities	FIG6, FIA3, FIS5	3	5		3
6	Units, estimating, area	Camping	FIG1, FIG2, FIG5, FBG6		7		5
7	Brackets, multiplication, index notation		FIN11, FIN4, FBN3	7			
8	Sequences		FBA1	3		1	
9	Percentages and fractions	Tennis	FIN7, FBN6		4		4
10	Using averages		FBS2	2		4	
11	Formulae and equations	Taxi	FBA2, FBA4		6		6
12	Interpret distance-time graph	Paintballing	FBA.5		2		
13	Scale drawing, area, percentage	Plan of garden	FBG6, FSN2	3	3		3
14	Calculations with mixed numbers	Milk	FGN2			6	6
15	LCM	Cats	FGN6, FIN10			4	
16	Estimate answer to calculation		FGN5	2			
17	Transformations		FSG6	5			
18	Quadratic graph		FGA6	6			
19	Change subject of formula		FGA3	2			
20	Construction of locus	Finding where to live	FGG6		4		4
21	Relative frequency	Lottery machine	FGS1		3		
	<b>TOTALS</b>			<b>51</b>	<b>34</b>	<b>15</b>	<b>31</b>

**Paper Total: 100 marks**

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