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**MATHEMATICS**

**1112/02**

Paper 2

**October 2015**

MARK SCHEME

Maximum Mark: 50

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**IMPORTANT NOTICE**

Mark Schemes have been issued on the basis of **one** copy per Assistant examiner and two copies per Team Leader.

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This document consists of **11** printed pages and **1** blank page.

Question number	1		
Part	Mark	Answer	Further Information
	1	Saturday ticked or stated in explanation <b>and</b> a correct reason, e.g. <ul style="list-style-type: none"> <li>• Mode on Monday is 1 and mode on Saturday is 2</li> <li>• 2 is greater than 1</li> </ul>	
<b>Total</b>	<b>1</b>		

Question number	2		
Part	Mark	Answer	Further Information
(a)	1	Add 6	
(b)	1	83	
<b>Total</b>	<b>2</b>		

Question number	3		
Part	Mark	Answer	Further Information
	1	<p>depth of water</p> <p>time</p> <p>depth of water</p> <p>time</p> <p>depth of water</p> <p>time</p> <p>depth of water</p> <p>time</p>	
<b>Total</b>	<b>1</b>		

Question number	4		
Part	Mark	Answer	Further Information
	1	6.85(000...) (cm)	
<b>Total</b>	<b>1</b>		

Question number	5		
Part	Mark	Answer	Further Information
	2		Award 1 mark if any 2 of F, G and H are positioned correctly.
<b>Total</b>	<b>2</b>		

Question number	6		
Part	Mark	Answer	Further Information
(a)	1	$5y + 8$ or $8 + 5y$	
(b)	1	$12w + 30$ or $30 + 12w$	
<b>Total</b>	<b>2</b>		

Question number	7		
Part	Mark	Answer	Further Information
(a)	1	2 : 3	
(b)	1	(\$)8	Allow follow through from an incorrect answer to part (a).
<b>Total</b>	<b>2</b>		

<b>Question number</b>	<b>8</b>		
<b>Part</b>	<b>Mark</b>	<b>Answer</b>	<b>Further Information</b>
	1	52 (%)	
<b>Total</b>	<b>1</b>		

<b>Question number</b>	<b>9</b>		
<b>Part</b>	<b>Mark</b>	<b>Answer</b>	<b>Further Information</b>
	2	$\frac{2}{5}$ of 410      38% of 420 <b>and</b> $(\frac{2}{5} \text{ of } 410 =) 164$ <b>and</b> $(38\% \text{ of } 420 =) 159.60$	Award 1 mark for 159.60 or 164 seen
<b>Total</b>	<b>2</b>		

<b>Question number</b>	<b>10</b>		
<b>Part</b>	<b>Mark</b>	<b>Answer</b>	<b>Further Information</b>
	2	27.0 (cm)	Award 1 mark for sight of $\pi \times 8.6$ or $2 \times \pi \times 4.3$
<b>Total</b>	<b>2</b>		

Question number	11														
Part	Mark	Answer	Further Information												
(a)	1	<table border="1"> <tr> <td><math>0 \leq l &lt; 1</math></td> <td>   </td> <td>3</td> </tr> <tr> <td><math>1 \leq l &lt; 2</math></td> <td>        </td> <td>8</td> </tr> <tr> <td><math>2 \leq l &lt; 3</math></td> <td>       </td> <td>7</td> </tr> <tr> <td><math>3 \leq l &lt; 4</math></td> <td>  </td> <td>2</td> </tr> </table>	$0 \leq l < 1$		3	$1 \leq l < 2$		8	$2 \leq l < 3$		7	$3 \leq l < 4$		2	
$0 \leq l < 1$		3													
$1 \leq l < 2$		8													
$2 \leq l < 3$		7													
$3 \leq l < 4$		2													
(b)	1	Draws a complete and correct frequency diagram.	Do not award mark for a diagram which has gaps between the bars.  Allow follow through from their frequencies.												
(c)	1	True <input checked="" type="checkbox"/> False <input type="checkbox"/> True <input checked="" type="checkbox"/> False <input type="checkbox"/>													
<b>Total</b>	<b>3</b>														

Question number	12		
Part	Mark	Answer	Further Information
	2	(B) C (or kite) D (or parallelogram) A (or rectangle) E (or square)	Award 1 mark for at least 2 correct answers.
<b>Total</b>	<b>2</b>		

Question number	13		
Part	Mark	Answer	Further Information
	1	$\frac{(n-5)}{7}$ or equivalent.	
<b>Total</b>	<b>1</b>		

<b>Question number</b>	<b>14</b>		
<b>Part</b>	<b>Mark</b>	<b>Answer</b>	<b>Further Information</b>
	1	(0).429 (hectares)	
<b>Total</b>	<b>1</b>		

<b>Question number</b>	<b>15</b>		
<b>Part</b>	<b>Mark</b>	<b>Answer</b>	<b>Further Information</b>
	2	(2, -1)	Award 1 mark for each of the coordinates.  Award 1 mark for both values correct but incorrect notation used e.g. (x2, y-1) (x =2, y = -1)
<b>Total</b>	<b>2</b>		

<b>Question number</b>	<b>16</b>		
<b>Part</b>	<b>Mark</b>	<b>Answer</b>	<b>Further Information</b>
	2	18 000 0.0060	Award 1 mark for each.
<b>Total</b>	<b>2</b>		

<b>Question number</b>	<b>17</b>		
<b>Part</b>	<b>Mark</b>	<b>Answer</b>	<b>Further Information</b>
	1	$3^7$	
<b>Total</b>	<b>1</b>		

Question number	18		
Part	Mark	Answer	Further Information
	3	355 (cm <sup>3</sup> )	<p>Award 2 marks for a complete correct method, e.g.</p> <ul style="list-style-type: none"> <li>• <math>71 \times 5</math></li> <li>• <math>[(7 \times 8) + (5 \times 3)] \times 5</math></li> <li>• <math>[(8 \times 4) + (13 \times 3)] \times 5</math></li> <li>• <math>280 + 75</math></li> <li>• <math>160 + 195</math></li> <li>• <math>[7 \times 13 - 4 \times 5] \times 5</math></li> </ul> <p>Award 1 mark for sight of any of these calculations or answers in brackets:</p> <ul style="list-style-type: none"> <li>• <math>7 \times 8 + 5 \times 3 (= 71)</math></li> <li>• <math>8 \times 4 + 13 \times 3 (= 71)</math></li> <li>• <math>7 \times 8 \times 5 (= 280)</math></li> <li>• <math>8 \times 4 \times 5 (= 160)</math></li> <li>• <math>5 \times 3 \times 5 (= 75)</math></li> <li>• <math>13 \times 3 \times 5 (= 195)</math></li> <li>• <math>7 \times 13 \times 5 (= 455)</math></li> <li>• <math>4 \times 5 \times 5 (= 100)</math></li> </ul>
<b>Total</b>	<b>3</b>		

Question number	19		
Part	Mark	Answer	Further Information
	1	8.08	
<b>Total</b>	<b>1</b>		

Question number	20		
Part	Mark	Answer	Further Information
(a)	1	Negative (correlation)	
(b)	1	<p>Indicates Graph A and gives a correct reason, e.g.</p> <ul style="list-style-type: none"> <li>• Babies generally get heavier as they get older</li> <li>• Older babies weigh more</li> <li>• Mass and age of babies will be positively correlated (and Graph A shows positive correlation)</li> </ul>	
<b>Total</b>	<b>2</b>		

Question number	21		
Part	Mark	Answer	Further Information
	1	9	
<b>Total</b>	<b>1</b>		



Question number	22		
Part	Mark	Answer	Further Information
	3	<p>cylinder    cuboid    jug  <b>and</b>            (volume of cylinder =) 1178 (cm<sup>3</sup>)  <b>and</b>            (volume of cuboid =) 1440 (cm<sup>3</sup>)</p> <p>or            1178          1440          2000            or            1.18          1.44          2</p>	<p>Award 2 marks for either</p> <ul style="list-style-type: none"> <li>• 1180 (or better) seen and 1440 seen</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>• one of 1180 or 1440 seen with a correct follow through order. Assuming only 1 error</li> </ul> <p>Award 1 mark for either 1180 (or better) or 1440 seen.</p> <p>Award maximum 1 mark for correct answer <b>with no working.</b></p>
<b>Total</b>	<b>3</b>		

Question number	23		
Part	Mark	Answer	Further Information
(a)	2	A straight line passing through (0, 3) and (1.5, 0) <b>and</b> extending as far as (-1, 5) <b>and</b> (3, -3).	<p>Award 1 mark for:</p> <ul style="list-style-type: none"> <li>• any straight line through (0, 3) or (1.5, 0)</li> </ul> <p><b>or</b></p> <ul style="list-style-type: none"> <li>• for a line with gradient -2, i.e. parallel to correct line.</li> </ul>
(b)	1	$(x) = 2$ $(y) = -1$	Follow through from their (a) to the nearest half square if the two lines intersect.
<b>Total</b>	<b>3</b>		

Question number	24		
Part	Mark	Answer	Further Information
	2	56.3(38...) or 56 (litres)	<p>For 2 marks accept 56.34 or 56.32</p> <p>Award 1 mark for an attempt to find the cost of one litre (\$1.42) and divide 80 by that.</p> <p><b>or</b></p> <p>Award 1 mark for an attempt to find the amount that can be bought for \$1 (0.704.. litres) and multiply that by 80</p> <p><b>or</b></p> <p>Award 1 mark for using proportions e.g. <math>(80 \div 54.67) \times 38.5</math></p>
<b>Total</b>	<b>2</b>		

Question number	25		
Part	Mark	Answer	Further Information
(a)	1	0.6 or equivalent	
(b)	1	<p>Team A <b>and</b> (The relative frequencies are) 0.43(75) or 0.44 and 0.32(14...)</p> <p><b>or</b></p> <p><math>\frac{7}{16}</math> is bigger than <math>\frac{9}{28}</math></p>	
<b>Total</b>	<b>2</b>		

Question number	26		
Part	Mark	Answer	Further Information
(a)	1	060 (°)	
(b)	1	310 (°)	
<b>Total</b>	<b>2</b>		

Question number	27		
Part	Mark	Answer	Further Information
	3	Supermarket (is cheaper) by (\$)1.26	<p>Award 2 marks for sight of any of</p> <ul style="list-style-type: none"> <li>• (\$)39.06</li> <li>• (\$)37.8(0) and <math>0.875 \times 18 \times 2.48</math> (oe)</li> <li>• Correct method with 1 arithmetic error</li> <li>• 2.17 and <math>0.07 \times 18</math></li> </ul> <p>Award 1 mark for</p> <ul style="list-style-type: none"> <li>• <math>2.10 \times 18</math></li> <li>• (\$)37.8(0)</li> <li>• <math>18 \times 2.48</math></li> <li>• 44.64</li> <li>• 2.17 seen</li> </ul>
<b>Total</b>	<b>3</b>		

