

## Section 1

Question	Answer																																								
1	<p style="text-align: center;"><b>10 circuits</b></p> <p>30km to cycle in 30 days of September. This equals to 1km per day.  <math>1\text{km} = 1000\text{m}</math>  <math>1000 \div 100 = 10</math> circuits per day.</p>																																								
2	<p style="text-align: center;"><b>40 seats</b></p> <p>Using ratios, occupied seats to empty seats = 4:1  5 total parts where 1 part is empty seats.  <math>200 \div 5 = 40</math> empty seats.</p>																																								
3	<p style="text-align: center;"><b>21 sweets</b></p> <p>Add up all the sweets to form an equation, then solve for S.  <math>S + (S + 4) + 3S = 39</math>  <math>5S + 4 = 39</math>  <math>5S = 35</math>  <math>S = 7</math>  Cindy = <math>3S = 3 \times 7 = 21</math> sweets.</p>																																								
4	<p style="text-align: center;"><b>34</b></p> <p>Using BIDMAS, multiplication comes first.  <math>5 + (3 \times 12) - 7</math>  <math>5 + 36 - 7 = 34</math></p>																																								
5	<p style="text-align: center;"><b>11</b></p> <p>Square rooting both sides gives: <math>x - 3 = 8</math>  Solve for x: <math>x = 11</math></p>																																								
6	<p style="text-align: center;"><b>24 bags</b></p> <p>Using long division: <math>408 \div 17 = 24</math> bags.</p> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse; margin: auto;"> <tr><td></td><td></td><td style="border-bottom: 1px solid black;">0</td><td style="border-bottom: 1px solid black;">2</td><td style="border-bottom: 1px solid black;">4</td></tr> <tr><td style="border-right: 1px solid black;">1</td><td style="border-right: 1px solid black;">7</td><td style="border-right: 1px solid black;">4</td><td style="border-right: 1px solid black;">0</td><td>8</td></tr> <tr><td></td><td style="border-right: 1px solid black;">-</td><td style="border-right: 1px solid black;">0</td><td></td><td></td></tr> <tr><td></td><td style="border-right: 1px solid black;"></td><td style="border-right: 1px solid black;">4</td><td style="border-right: 1px solid black;">0</td><td></td></tr> <tr><td></td><td style="border-right: 1px solid black;">-</td><td style="border-right: 1px solid black;">3</td><td style="border-right: 1px solid black;">4</td><td></td></tr> <tr><td></td><td style="border-right: 1px solid black;"></td><td style="border-right: 1px solid black;">6</td><td style="border-right: 1px solid black;">8</td><td></td></tr> <tr><td></td><td style="border-right: 1px solid black;">-</td><td style="border-right: 1px solid black;">6</td><td style="border-right: 1px solid black;">8</td><td></td></tr> <tr><td></td><td style="border-right: 1px solid black;"></td><td style="border-right: 1px solid black;">0</td><td style="border-right: 1px solid black;"></td><td></td></tr> </table> </div>			0	2	4	1	7	4	0	8		-	0					4	0			-	3	4				6	8			-	6	8				0		
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7	<p style="text-align: center;"><b>135 degrees</b></p> <p>There are 360 degrees in a circle. The circle is split into 8 sectors.  <math>360 \div 8 = 45</math> degrees.  The arrow turns through 3 sectors to reach E.</p>																																								

	$3 \times 45 = 135$ degrees.
8	<b>16 times greater</b> A square with sides $x$ has an area of $x^2$ . Therefore, a square with sides $4x$ would have an area of: $4x \times 4x = 16x^2$ .
9	<b>48 percent</b> $25 - 13 = 12$ boys $12/25 = 48/100 = 48\%$
10	<b>06 pieces</b> $1.44\text{m} = 144\text{cm}$ $144 \div 24 = 6$ .
11	<b>£150</b> Perimeter of the garden = $8 + 8 + 12 + 12 = 40\text{m}$ $40 \div 4 = 10$ parts of fencing. $10 \times 15 = \text{£}150$
12	<b>98</b> $10\%$ of 280 = 28 $5\%$ of 280 = 14 $3 \times 28 + 14 = 98$
<i>Section 1 Subtotal</i>	<i>/12</i>

## Section 2

Question	Answer
1	<b>C</b> $7(a + 2b)$ $(7a + 14b)$ can be factorised (divide by 7) to give $7(a + 2b)$
2	<b>B</b> <b>£2.03</b> $4 \times 1.40 = \text{£}5.60$ $3 \times 0.79 = \text{£}2.37$ $5.60 + 2.37 = \text{£}7.97$ Change from $\text{£}10$ : $10 - 7.97 = \text{£}2.03$
3	<b>E</b> <b>1.2m</b> Total length of chairs = $5 \times 0.8 = 4\text{m}$ Total length of tables = $7.6 - 4 = 3.6\text{m}$ Length of 1 table = $3.6 \div 3 = 1.2\text{m}$

4	<p style="text-align: center;"><b>B 10% of 70</b></p> <p>25% of 30 = 7.5  10% of 70 = 7 = LOWEST  20% of 40 = 8  50% of 15 = 7.5  60% of 12 = 7.2</p>
5	<p style="text-align: center;"><b>C 16:45</b></p> <p>Meetings: <math>5 \times 30 = 150</math> mins  Lunch break = 90 mins  Other breaks = <math>3 \times 20 = 60</math> mins  Project = 3 hours = 180 mins  Total time = <math>150 + 90 + 60 + 180 = 480</math> mins or 8 hours.  8 hours after 8:45 is 16:45.</p>
6	<p style="text-align: center;"><b>D 12</b></p> <p>Cut in half: 2 sections.  Cut into thirds: <math>2 \times 3 = 6</math> sections.  Cut into half: <math>6 \times 2 = 12</math> sections.</p>
7	<p style="text-align: center;"><b>B 40cm</b></p> <p>Let <math>x</math> be the width (shorter side) of the rectangle.  Form an equation, then solve for <math>x</math>.  Perimeter = <math>2x + 2(x + 30) = 220</math>  <math>2x + 2x + 60 = 220</math>  <math>4x + 60 = 220</math>  <math>4x = 160</math>  <math>x = 40\text{cm}</math></p>
8	<p style="text-align: center;"><b>B -4</b></p> <p>Counting backwards in steps of 6:  26, 20, 14, 8, 2, -4.</p>
9	<p style="text-align: center;"><b>C 90</b></p> <p>360 degrees in a circle which represents 12 hours.  Each hour = <math>360 \div 12 = 30</math> degrees.  3 hours = <math>3 \times 30 = 90</math> degrees.</p>
10	<p style="text-align: center;"><b>D 7.5 miles</b></p> <p>15 minutes is a quarter of an hour.  If he can complete 30 miles in 1 hour, he will drive 7.5 miles in a quarter of that time. (<math>30 \div 4</math>)</p>
11	<p style="text-align: center;"><b>D Box Z</b></p> <p>Writing out the 11 times table: 11, 22, 33, 44, 55, 66, 77, 88, 99 ...  91 is not a multiple of 11.  Writing out the 13 times table: 13, 26, 39, 52, 65, 78, 91 ...  ...  91 is a multiple of 13 and is also odd. It belongs in Box Z.</p>

12	<p><b>A</b> <math>3D + 4M</math></p> <p>4 bars of milk chocolates: 4M          Calculate the number of dark chocolate purchased:  <math>45 \div 15 = 3</math> bars of dark chocolates - 3D.          Therefore, <math>3D + 4M</math></p>
13	<p><b>C</b> 10</p> <p>If one portion is <math>\frac{1}{20}</math>, then the whole jug serves 20 guests.          If only 50% of the jug is used, it has served 10 guests.</p>
14	<p><b>B</b> 4:3</p> <p>John now owns 8 guitars and 6 violins.          The ratio of guitars to violins is 8:6 which is simplified to 4:3.</p>
15	<p><b>A</b> <math>N + 12</math></p> <p>The lowest common multiple of 2, 3 and 4, is 12.          Therefore, <math>N + 12</math> is divisible by all the factors listed.</p>
<i>Section 2 Subtotal</i>	<i>/15</i>
<i>Total</i>	<i>/27</i>

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