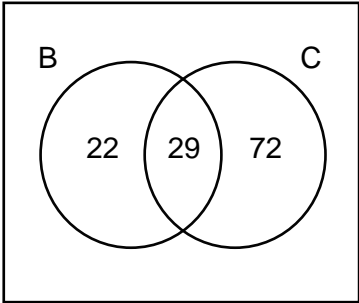


Question		Answer	Marks	Part marks and guidance	
1	(a)	Pyramid	1		If answer line blank check the box for indication
	(b)	Pentagon	1		
	(c)	Sketch of a rectangle	1		Correct by eye Condone diagonals drawn Must be completely on grid
2	(a)	3600	1		
	(b)	[£] 3.29	1		Condone 329p but not £329p or £3.29p Do not condone extra zeros
3	(a)	$\frac{3}{5}$ or equivalent fraction	1		
	(b)	Three squares shaded	1		Accept any clear indication
4	(a)	1 5 25	2	<b>B1</b> for 5 and <b>B1</b> for 1 and 25	Allow B1 for one correct factor pair  Treat incorrect extra(s) as choice
	(b)	49 or 64	1		If more than one both must be correct Not $7^2$ or $8^2$
5		5.1	2	<b>M1</b> for $(4.2 + 6) \div 2$ or $4.2 + (6 - 4.2) \div 2$ oe or complete number line from 4.2 to 6 with indication of working towards the middle value	May be done in parts
6		106	2	<b>M1</b> for $360 - (90 + 39 + 125)$ oe	
7		600	3	<b>M1</b> for a correct conversion of litres to millilitres  <b>M1</b> for figs $15 \div (2 + 3)$ [ $\times 2$ ]  If <b>0</b> scored <b>SC1</b> for answer 600 : 900 or for answer figs 6	eg <b>M1</b> implied by 1500 with no further conversions

Question		Answer	Marks	Part marks and guidance	
8		4 [cm]	3	<b>M2</b> for $240 \div (12 \times 5)$ or <b>M1</b> for $12 \times 5 \times x [= 240]$ may be implied by 60x.	May be done in stages
9		6 hours 15 minutes	4	<b>B3</b> for 6.25 oe or for answer 6 h 25 min OR <b>M2</b> for $6 \times 50 \div 48$ or <b>M1</b> for $6 \times 50$ may be implied by 300	
10	(a)	7	3	<b>M2</b> for $70 \times \frac{24}{16} \div 15$ oe or <b>M1</b> for $70 \times \frac{24}{16}$ oe may be implied by 105 or for $70 \div 15$ may be implied by 4.66 to 4.7	May be done in stages Do not award 3 for answer 7 from rounded values

	<b>(b)</b>	40 with correct working	<b>4</b>	<p><b>M1</b> for <math>240 \div 80</math> implied by 3  <b>M1</b> for <math>1000 \div 400</math> implied by 2.5  AND  <b>M1</b> for <math>16 \times</math> <i>their</i> 2.5 or <math>16 \times</math> <i>their</i> 3</p> <p>OR</p> <p><b>M1</b> for <math>80 \div 16</math> implied by 5  <b>M1</b> for <math>400 \div 16</math> implied by 25</p> <p>AND  <b>M1</b> for <math>1000 \div</math> <i>their</i> 25 or <math>240 \div</math> <i>their</i> 5</p> <p>OR</p> <p><b>M3</b> for 240g [of sultanas] = 48 [scones] and  1000g [of flour] = 40 [scones]</p> <p>OR</p> <p><b>M3</b> for 200g [of sultanas] = 40[scones] and  1000g [of flour] = 40 [scones]</p> <p>OR</p> <p><b>M2</b> for 240g [of sultanas] = 48 [scones] and  1200g [of flour] = 48 [scones]</p> <p>If <b>0</b> or <b>1</b> scored, instead award  <b>SC2</b> for answer 40 with no or insufficient  working</p>	<p>Correct working requires at least the first two <b>M1</b> marks</p> <p>Must have a comparison of flour and sultanas</p>
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Question		Answer	Marks	Part marks and guidance	
11	(a)		1		In this part, condone b(i) misplaced
	(b)	(i) 17	1		
		(ii) 17 in correct place on diagram	1	FT their (b)(i)	Not strict FT as they may have started again
	(c)	$\frac{101}{140}$ oe	2	<b>FT</b> $\frac{\text{their } 72 + \text{their } 29}{140}$ <b>M1</b> for <i>their 72 + their 29</i> may be implied by 101 <i>their 72 + their 29</i> must be <140 for 2 or 1 mark	Accept 0.721 or 72.1% isw an incorrect simplification of their correct probability or incorrect conversion to decimal or percentage Do not accept ratio

Question	Answer	Marks	Part marks and guidance
12	6 with correct working	5	<p><b>M1</b> for <math>560 \times 0.6</math> or <math>560 \times 60</math>  <b>M1</b> for <math>916 - 130</math>  or <math>916 - \textit{their} (560 \times 0.6)</math>  <b>M1</b> for <math>916 - (130 + \textit{their} (560 \times 0.6))</math>  <b>M1</b> for <math>(916 - (130 + \textit{their} (560 \times 0.6))) \div 90</math></p> <p><u>Trials</u>  <b>M4</b> for <math>560 \times 0.6 + 5 \times 90 + 130 = 916</math> oe  or <b>M3</b> for two trials of the form <math>560 \times 0.6 + n \times 90 + 130</math> oe seen and correctly evaluated where <math>n \geq 1, n \neq 5</math>  or <b>M2</b> for one trial of the form <math>560 \times 0.6 + n \times 90 + 130</math> seen and correctly evaluated where <math>n \geq 1, n \neq 5</math>  or <b>M1</b> for <math>560 \times 0.6</math> [+...]</p> <p>If <b>0, 1</b> or <b>2</b> scored, instead award <b>SC3</b> for answer 6 with no working or insufficient working  If <b>0</b> or <b>1</b> scored, instead award <b>SC2</b> for answer 5 with no working or insufficient working  If <b>0</b> scored, <b>SC1</b> for 450 with no working or insufficient working</p> <p>“Correct working” requires evidence of at least <b>M3</b> or <b>M1 M1 M1</b>  <i>Their</i> <math>560 \times 0.6</math> may be <math>560 \times 60</math> with an attempt to convert to pounds  <math>\div 90</math> may be repeated subtraction or addition</p> <p>egs for <u>Trial and +90s</u>  <b>M4</b> for <math>560 \times 0.6 + 3 \times 90 + 130 = 736</math>  and <math>736 + 90 + 90 = 916</math>  <b>M3</b> for <math>560 \times 0.6 + 3 \times 90 + 130 = 736</math>  and <math>736 + 90 = 826</math>  <b>M2</b> for <math>560 \times 0.6 + 3 \times 90 + 130 = 736</math>  <b>M1</b> for <math>560 \times 0.6</math> [+ ...]</p> <p>For trials and trials + 90s, accept correct rearrangements that have a target of 786, 580 or 450 rather than 916</p>

Question		Answer	Marks	Part marks and guidance	
13		46 nfw	4	<p><b>M1</b> for <math>30 + 38 + 52</math> implied by 120 as total</p> <p><b>M1</b> for <math>[0].85 \times</math> <i>their</i> 120 may be implied by 102</p> <p><b>M1</b> for <i>their</i> <math>102 - (24 + 32)</math></p>	Must see a calculation if not 102. "85% of" is not a calculation
14		B F	2	<b>B1</b> for each	Accept correct equations
15		7 nfw	4	<p><b>M3</b> for <math>6p - 8</math> and <i>their</i> <math>(6 \times 5 + 4)</math> correctly used together</p> <p>or <math>34 + 8 = 6p</math></p> <p>or <math>(34 + 8) \div 6</math></p> <p>or <math>6 \times 7 - 8 = 34</math></p> <p>OR</p> <p><b>M1</b> for <math>6 \times 5 + 4</math> may be implied by 34</p> <p><b>M1</b> for <math>6p - 8</math> or <math>34 + 8</math> or for one correctly evaluated trial</p>	eg an equation with a first step to solve
16	(a)	$10a - 5a^2$ final answer	2	<b>B1</b> for $10a$ or $-5a^2$ in final answer	
	(b)	$x > 0.6$ or $x > \frac{3}{5}$ final answer	2	<p><b>M1</b> for <math>5x &gt; 12 - 9</math> oe</p> <p>or for <math>x + 1.8 &gt; 2.4</math> oe or for answer 0.6 oe</p> <p>with or without equality or wrong inequality symbol</p>	

Question		Answer	Marks	Part marks and guidance	
	(c)	$(x + 4)(x + 3)$  - 4 and - 3	<b>M2</b>  <b>B1FT</b>	<b>M1</b> for $(x + a)$ and $(x + b)$ where $ab = 12$ or $a + b = 7$  for correct solutions from <i>their</i> quadratic factors  If 0 scored <b>SC1</b> for answers $\pm 4$ and $\pm 3$	Condone final bracket missing Accept $(x + 4) = 0$ $(x + 3) = 0$ for M2  Allow correctly completed grid with +4 and +3 as headers for M1
17	(a)	it has only one factor	<b>1</b>		Accept any correct reason see appendix if more than one statement mark the best as long as it is not contradicted or has an incorrect statement
	(b)	1, a, b, ab, $a^2$ , $a^2b$	<b>2</b>	<b>B1</b> for at least 3 correct	Ignore repetitions, maximum 6 values, if more than 6 apply choice, condone e.g $a \times a$ , $a \times b$ for $a^2$ , $ab$ etc
18	(a)	a correct labelled pie chart with ruled lines	<b>4</b>	<b>B3</b> for a correct unlabelled/incorrectly labelled pie chart with ruled lines  OR  <b>B2</b> for 162, 90 and 108 or for two sectors within tolerance of $\pm 2^\circ$ ignore label or <b>M1</b> for $\frac{360}{40}$ or 9  OR  <b>B1</b> for one sector within tolerance ignore label	Correct means three sectors must be within tolerance of $\pm 2^\circ$ for <b>B3</b> and <b>4</b> marks Do not accept frequency alone as labels  May be seen in working, alongside table or on pie chart  Note : maximum of 3 sectors for <b>B3</b> , <b>B2</b> and <b>B1</b>

Question		Answer	Marks	Part marks and guidance	
	(b)	The pie charts do not show how many matches were played by each team	1		Accept any correct reason see appendix if more than one statement mark the best as long as it is not contradicted or has an incorrect statement
19	(a)	4	1		
	(b)	23:04 or 11 04 pm	4	<b>B3</b> for 64[m] or 1[h] 4[m] OR <b>M3</b> for $\frac{48}{45} \times 60$ oe or <b>M2</b> for $\frac{48}{45}$ implied by 1.06 to 1.07 or $1\frac{1}{15}$ or $\frac{3}{45} \times 60$ oe implied by 4 or <b>M1</b> for $\frac{k}{45}$	Not 11 04 [am] or 11h 4[m]
20	(a)	1000x oe or x kg = 1000x oe	1		Accept e.g. 1000 × x or x1000 or x × 1000 Do not allow e.g. x = 1000x or w = x1000 Ignore units e.g. k and g
	(b)	$\frac{y}{10\,000}$ oe or $y \text{ cm}^2 = \frac{y}{10\,000}$ oe	1		Allow e.g. $\frac{y}{100^2}$ or 0.0001y or $y \times 10^{-4}$ or $y \div 10\,000$ or $0.0001 \times y$ or $\frac{1}{10000} y$ Ignore units e.g. m and cm

Question		Answer	Marks	Part marks and guidance	
21	(a)	Eg sin must be $\leq 1$ their opp is $>$ than their hyp	1		See appendix
	(b)	53.1[3...]	3	<b>M2</b> for $\cos^{-1} \frac{24}{40}$ or <b>M1</b> for $\cos [x] [=] \frac{24}{40}$ or 0.6	Accept 53 after <b>M1</b> or <b>M2</b> scored  Accept full methods using Pythagoras or sin or tan
22	(a)	0.3 0.2, 0.8, 0.2, 0.8 or 0.2, 0.8, 0.8, 0.2  Does not stop, stops, does not stop	1 1 1		Accept fractions or percentages  Diagram must be fully correct for 3 marks
	(b)	0.62	3	<b>M2</b> for $0.7 \times 0.8 + 0.3 \times 0.2$ or better or for $1 - (0.7 \times 0.2 + 0.3 \times 0.8)$ or better or <b>M1</b> for one correct product shown or implied	<b>FT</b> for <b>M1</b> and <b>M2</b> and <b>3</b> <i>their</i> 0.8, 0.2 and <i>their</i> 0.3 (must be less than 1)  eg $0.7 \times 0.8$ or $0.3 \times 0.2$ or $0.7 \times 0.2$ or $0.3 \times 0.8$ soi by 0.56, 0.06, 0.14 or 0.24
23	(a)	Three correct comparable ratios eg $\frac{7}{2.5} = \frac{8.96}{3.2} = \frac{11.2}{4} = 2.8$  or two correct calculations eg $\frac{3.2}{2.5} \times 7 = 8.96$ and $\frac{4}{2.5} \times 7 = 11.2$  Yes, the ratios are the same or Yes, the lengths are correct	<b>M2</b>        <b>1dep</b>	<b>M1</b> for 2 comparable ratios or for one correct calculation        dependent on <b>M2</b> scored	<b>3</b> marks for 3 sides (6 values connected), “yes” and reason <b>M2</b> for 3 sides (6 values connected) <b>M1</b> for 2 sides (4 values connected)

Question		Answer	Marks	Part marks and guidance	
	(b)	No, length of sides is not known	1		Allow BOD for No, with a justifiable mathematical reason in relation to the diagram, e.g. angles in a triangle add to $180^\circ$
24		[carrots = ] 1.23 [potatoes = ] 0.78 with correct working	5	<p><b>B4</b> for one correct answer with correct working</p> <p>OR</p> <p><b>M1</b> for <math>2c + 5p = 6.36</math> oe <b>M1</b> for <math>3c + 2p = 5.25</math> oe</p> <p><b>M1</b> for correct method to equate coefficients of one variable allowing one arithmetic error</p> <p><b>M1</b> for correct method to eliminate one variable allowing one arithmetic error</p> <p>If <b>0</b> or <b>M1</b> scored award <b>SC2</b> for answers 1.23 and 0.78 with no working or insufficient working</p> <p>or if <b>0</b> scored <b>SC1</b> for two answers which satisfy one of the original conditions</p>	<p>“Correct working” requires evidence of at least <b>M1 M1 M1</b></p> <p>Allow any letter for <math>c</math> and <math>p</math>, but not carrots or potatoes, and working in pence, answers in pence must have ‘p’ after, condone £ or pence in equations</p> <p>e.g. <math>6c+15p=19.08</math> and <math>6c+4p=10.50</math> or <math>4c+10p=12.72</math> and <math>15c+10p=26.25</math></p> <p>e.g. <math>11p = 8.58</math> or <math>11c = 13.53</math></p> <p>Note: A sign error is not an arithmetic error</p> <p>if substitution method used <b>M1</b> for correctly rearranging equation <b>M1</b> for correct substitution into other equation</p> <p>Correct answers from trial and improvement scores <b>5</b></p>

25		27 with correct working	5	<p><b>M2</b> for [56 =] <math>2 \times 2 \times 2 \times 7</math> oe or better <u>and</u> [64 =] <math>2 \times 2 \times 2 \times 2 \times 2</math> oe or better or listing the correct multiples of 56 and 64 up to 448</p> <p>or <b>M1</b> for [56 =] <math>2 \times 2 \times 2 \times 7</math> or better <u>or</u> [64 =] <math>2 \times 2 \times 2 \times 2 \times 2</math> or listing the next 3 correct multiples of each or one complete list or [LCM = ] <math>448k</math> (<math>k = 2, 3, 4 \dots</math>)</p> <p><b>A1</b> for 448 or <math>2^6 \times 7</math> oe e.g <math>8 \times 8 \times 7</math></p> <p>and</p> <p><b>M1</b> for <math>12\ 463 \div \textit{their} 448</math></p> <p>If <b>0</b>, <b>1</b> or <b>2</b> scored, instead award <b>SC3</b> for answer 27 with no working or insufficient working If <b>0</b> or <b>1</b> scored, instead award</p> <p><b>SC2</b> for answer 27.8... with no working or insufficient working</p> <p>If <b>0</b> scored, instead award</p> <p><b>SC1</b> for 448 with no working or insufficient working</p>	<p>“Correct working” requires evidence of at least either <b>M2</b> or <b>M1 M1</b></p> <p>Allow factors in e.g. factor trees or tables and allow for <b>M2</b> any correct complete method e.g. [56=] <math>8 \times 7</math> and [64=] <math>8 \times 8</math> or multiples of 56 up to 448 <b>and</b> some indication of dividing these numbers by 64 or with multiples of 64 and dividing by 56</p> <p>multiples of 56 and 64 are 112, 168, 224, 280, 336, 392, 448 and 128, 192, 256, 320, 384, 448 You might see this:</p> <table border="1" data-bbox="1630 639 1839 807"> <tr> <td></td> <td>56</td> <td>64</td> </tr> <tr> <td>2</td> <td>28</td> <td>32</td> </tr> <tr> <td>2</td> <td>14</td> <td>16</td> </tr> <tr> <td>2</td> <td>7</td> <td>8</td> </tr> </table> <p><b>M1</b> may be implied by 27.8...</p> <p>Alternative method : <b>M2</b> for an attempt at <math>\frac{12463}{56} - \frac{12463}{64}</math> or <b>M1</b> for an attempt at <math>\frac{12463}{56}</math> and an attempt at <math>\frac{12463}{64}</math> AND <b>B2</b> for 27.8.... or <b>B1</b> for <math>27 &lt; \textit{their} 27.8 \leq 28</math></p>		56	64	2	28	32	2	14	16	2	7	8
	56	64															
2	28	32															
2	14	16															
2	7	8															

Question		Answer	Marks	Part marks and guidance	
26		$\pi \times 5^2$	M1		
		<i>their</i> $(\pi \times 5^2) \times \frac{70}{360}$ oe	M1		Accept $(78.5 \text{ to } 78.6) \times \frac{70}{360}$
		15.26 to 15.284 [rounds to 15.3]	A1		