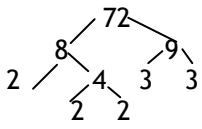




1380/3 Higher Non Calculator																						
Question	Working				Answer	Mark	Notes															
1	(a)	<table border="1"> <tr> <td>15</td> <td>25</td> <td>14</td> <td>54</td> </tr> <tr> <td>22</td> <td>8</td> <td>16</td> <td>46</td> </tr> <tr> <td>37</td> <td>33</td> <td>30</td> <td>100</td> </tr> </table>				15	25	14	54	22	8	16	46	37	33	30	100	Table	3	B3 for all 5 correct (B2 for 3 or 4 correct) (B1 for 1 or 2 correct)		
	15	25	14	54																		
22	8	16	46																			
37	33	30	100																			
(b)					$\frac{37}{100}$	1	$\frac{37}{100}$ B1 oe															
2	(a)					$2x + 8y$	2	B2 for $2x + 8y$ oe [B1 for $2x$ or $8y$ seen] {Note: $-8y$ seen with no working gets B0 $4x + 2x = 6x$ gets B0}														
	(b)					$2c + 4r$	2	B2 for $2c + 4r$ oe [B1 for $2c$ or $4r$ oe seen] Ignore any Left Hand Side = $2c + 4r$ {Note: ignore units or use of 'p'}														
3	(a)	<table border="1"> <tr> <td>x</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>y</td> <td>-11</td> <td>-7</td> <td>-3</td> <td>1</td> <td>5</td> <td>9</td> </tr> </table>				x	-2	-1	0	1	2	3	y	-11	-7	-3	1	5	9	$-7, 1, 5$	2	B2 all 3 correct (B1 for 1 or 2 correct)
	x	-2	-1	0	1	2	3															
y	-11	-7	-3	1	5	9																
(b)					Graph	2	B2 for correct line between $x = -2$ and $x = 3$  (B1ft for plotting 5 of their points correctly or for a straight line with gradient 4 or for a straight line passing through $(0, -3)$ )															

1380/3H					
Question	Working	Answer	Mark	Notes	
4	(a)	$50 = 4k - 10$ $4k = 60$	15	2	M1 for $50 = 4k - 10$ oe A1 cao
	(b)	$y = 4 \times 2 - 3 \times 5$	-7	2	M1 for $4 \times 2 - 3 \times 5$ oe A1 cao
5	(a)		Vertices at (2, -2), (7, -2), (7, -6), (4, -6), (4, -4), (2, -4)	2	B2 for a fully correct rotation [B1 for correct shape with correct orientation OR a 90° anticlockwise rotation about O OR a 180° rotation about O OR for any 3 correct sides in the correct position]
	(b)		Translation by $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$	2	B1 for translation B1 (indep) for $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$ or 3 right and 1 down
6	(a)		opp sides are equal	1	B1 for a correct explanation
	(b)	$4x - 2x = 12 - 1$	5.5	2	M1 for $4x + 1 - 1 - 2x = 2x + 12 - 1 - 2x$ oe A1 for 5.5 or 11/2 or 5½
	(c)	$'5.5' \times 2 + 4 \times '5.5' + 1 + 2 \times '5.5' + 12$	57	2	M1 for correct substitution of $x = '5.5'$ into the four expressions to find the sum of FOUR sides or $8x + 13$ seen A1 ft
7	(a)		15.456	1	B1 cao
	(b)		0.15456	1	B1 cao
	(c)		3220	1	B1 cao

1380/3H				
Question	Working	Answer	Mark	Notes
8	(a) $x^2 = 72 \div 2$	6	2	M1 for $72 \div 2$ or 36 seen A1 6 or $-6$ or $\pm 6$
	(b) $72 = 2 \times 36 = 2 \times 2 \times 18$ $= 2 \times 2 \times 2 \times 9$ 	$2 \times 2 \times 2 \times 3 \times 3$	2	M1 for a systematic method of at least 2 correct divisions by a prime number or factor tree or a full process with one calculation error; can be implied by digits 2, 2, 2, 3, 3 on answer line A1 for $2 \times 2 \times 2 \times 3 \times 3$ or $2^3 \times 3^2$ or [Note $1 \times 2 \times 2 \times 2 \times 3 \times 3$ gets M1 A0]
9	(a)		2	M1 rectangle with either correct width or height or any square A1 cao
	(b)		2	B2 for a correct sketch (B1 any 3-D sketch of no more than 4 faces seen, with a trapezoidal face)
10	$\frac{40000}{125} = \frac{8000}{25} = 320$ seconds	320	3	M1 for $40 \times 1000$ or $125 \div 1000$ or 40000 or 0.125 M1 for $\frac{40000}{125}$ or $\frac{40}{0.125}$ A1 cao  OR  M1 for $1000 \div 125$ M1 for '8' $\times 40$ A1 cao

1380/3H					
Question	Working	Answer	Mark	Notes	
11	(a)		62.5	1	B1 cao
	(b)		63.5	1	B1 for 63.5 (accept <del>63.49</del> or 63.49.. or any evidence that the 9 is recurring or 63.499 or better)
12			Diagram	4	M1 arc radius 4 cm centre <i>B</i> within the guidelines M1 angle bisector from <i>A</i> to <i>BC</i> within the guidelines A1 for clear indication that inside of arc is being identified as correct region for the first condition, or that side of straight line nearer to <i>C</i> is identified as correct region for the second condition. (Note that only 1 of the Ms need be awarded for this A mark to be awarded) A1 fully correct region Ignore any drawing outside the given triangle
13	(a)			2	B1 'What type of magazine do you read?'  B1 for at least 2 magazines identified in response boxes [Note: B0 for any data collection sheet/chart
	(b)		How many magazines have you read in the last week  0 <input type="checkbox"/> 1 <input type="checkbox"/>  2-3 <input type="checkbox"/> >3 <input type="checkbox"/>	2	B1 Relevant question that refers to a time period. B1 for at least 3 mutually exclusive response boxes (need not be exhaustive)
14		$\frac{7 \times 200}{0.05} = \frac{1400}{0.05}$	28000	3	B1 for any two of 7, 200 or 0.05 M1 for correct processing of at least two of 7, 200 or 190 and 0.05 or 0.1 A1 26600 - 28000

1380/3H				
Question	Working	Answer	Mark	Notes
15	(a)		1	B1 cao
	(b)		1	B1 cao
16	(a)		2	B2 (B1 for $x(4x - 6y)$ or $2(2x^2 - 3xy)$ or $2x$ (two terms) or $4x(x - 1.5y)$ )
	(b)	$x^2 - x + 6x - 6 = x(x - 1) + 6(x - 1)$	2	B2 cao (B1 $(x - 6)(x + 1)$ or $(x - 6)(x - 1)$ or $x(x - 1) + 6(x - 1)$ or $x(x + 6) - (x + 6)$ )
17	(a)		2	B1 6 or 7 points plotted correctly $\pm 1$ full (2mm) square B1 (dep) for points joined by curve or line segments provided no gradient is negative - ignore any part of graph outside range of their points  (SC: B1 if 6 or 7 points plotted not at end but consistent within each interval and joined)
	(b)		2	B2 if answer is in the range 235 - 245  <b>OR</b> M1 (dep on graph being cf) for using cf = 60 or 60.5 A1 ft ( $\pm 1$ square)
	(c)		1	B1ft correct comment comparing money spent by men with money spent by women

1380/3H					
Question	Working	Answer	Mark	Notes	
18	(a)	$AOD = 90 - 36$ or $180 - (90 + 36)$	54	2	M1 $AOD = 90 - 36$ or $180 - (90 + 36)$ A1 cao
	(b)(i)	$ABC = AOD \div 2$	27	2	M1 $ABC = AOD \div 2$ A1 ft from '54'
	(ii)		Reason	1	B1 Angle at centre = twice angle at circumference
19	(a)		$x = 2, y = 3$	1	B1 cao
	(b)		$y = \frac{1}{2}x + 4$	2	M1 for $y = mx + 4$ or $y = \frac{1}{2}x + c, c \neq 2$ , or $\frac{1}{2}x + 4$ A1 for $y = \frac{1}{2}x + 4$ oe
20	(a)	$3t + 1 < t + 12$ $3t - t < 12 - 1$ $2t < 11$	$t < 5.5$	2	M1 $3t - t < 12 - 1$ A1 $t < 5.5$ oe (B1 for $t = 5.5$ or $t > 5.5$ or $5.5$ or $t \leq 5.5$ or $t \geq 5.5$ on the answer line)
	(b)		5	1	B1 for 5 or ft (a)
21		$M = kL^3$ $k = \frac{M}{L^3} = \frac{160}{8} = 20$ When $L = 3, M = 20 \times 3^3$	540	4	M1 for $M \propto L^3$ or $M = kL^3$ A1 $k = 20$ M1 for '20' $\times 3^3$ A1 for 540 cao

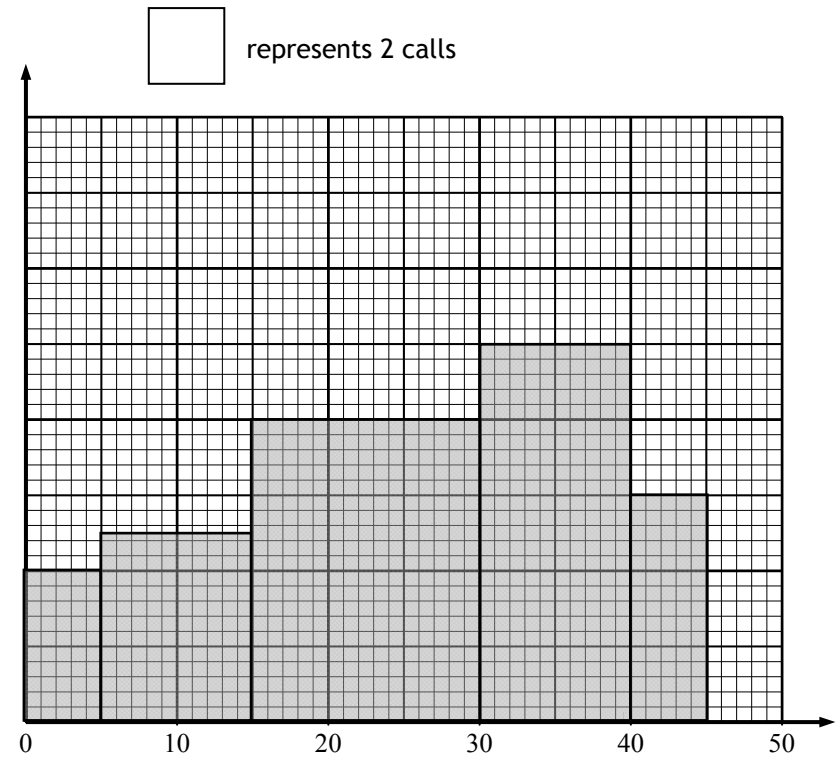
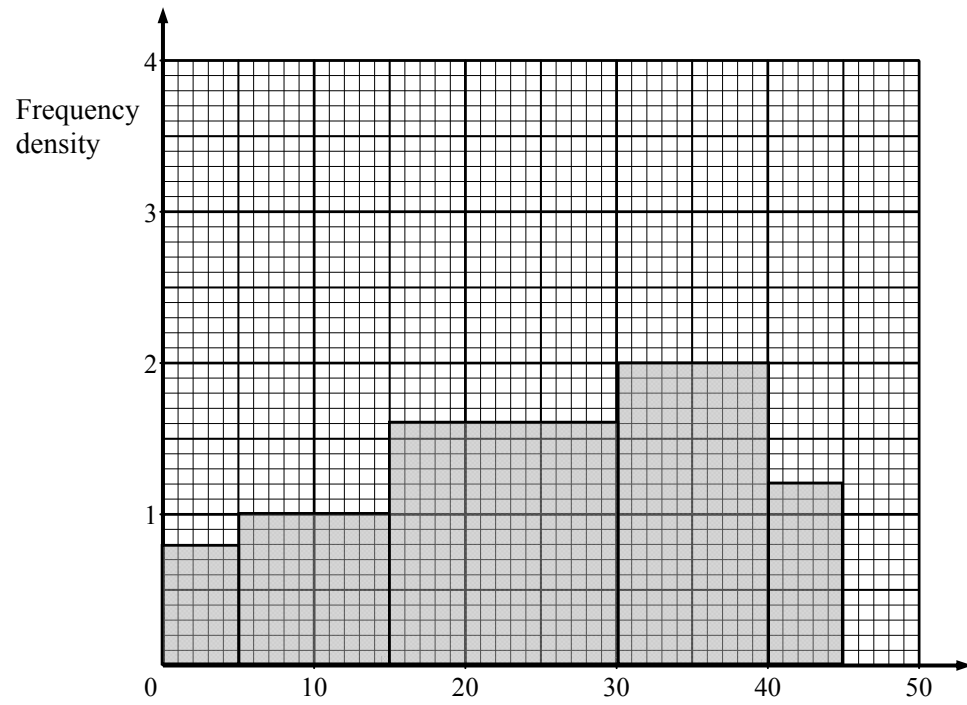
1380/3H										
Question	Working						Answer	Mark	Notes	
22		F	4	10	24	20	6	Correct histogram	4	<p>M1 use of frequency density as frequency <math>\div</math> width (can be implied by two correct frequency densities or two correct bars with different widths) or area (can be implied by one correct bar) to represent frequency</p> <p>A2 for all 5 histogram bars correct <math>\pm\frac{1}{2}</math> square (A1 at least 3 correct histogram bars <math>\pm\frac{1}{2}</math> square)</p> <p>A1 for correct label and scale numbered appropriately or for key and consistent scaling</p>
		Fd	0.8	1	1.6	2	1.2			
		or								
		F	4	10	24	20	6			
		Fd	4	5	8	10	6			
23	(a)							Correct diagram	2	B1 for 0.2 oe seen on bottom left branch B1 for correct probabilities on other branches
	(b)	$\text{prob}(WW) = 0.5 \times 0.5$						0.25	2	M1for $0.5 \times '0.5'$ A1ft for 0.25 oe

1380/3H					
Question	Working	Answer	Mark	Notes	
24	(a)	$AB = AC$ (equilateral triangle) $AD$ is common $\angle ADC = \angle ADB$ ( $= 90^\circ$ given) $\triangle ADC \equiv \triangle ADB$ (RHS)  OR $\angle DAC = \angle DAB$ (since $\angle ACD = \angle ABD$ and $\angle ADC = \angle ADB$ ) $AB = AC$ (equilateral triangle) $AD$ is common $\triangle ADC \equiv \triangle ADB$ (SAS)  OR $\angle DAC = \angle DAB$ (since $\angle ACD = \angle ABD$ and $\angle ADC = \angle ADB$ ) $AD$ is common $\angle ACD = \angle ABD$ (equilateral triangle) $\triangle ADC \equiv \triangle ADB$ (AAS)	Proof	3	M1 for any three correct statements (which do not have to be justified) that together lead to a congruence proof (ignore irrelevant statements) A1 for a full justification of these statements A1 for RHS, SAS, AAS, ASA or SSS as appropriate  NB The two A marks are independent
	(b)	$BD = DC$ (congruent $\triangle$ s) $BC = AB$ (equilateral $\triangle$ s) Hence $BD = \frac{1}{2} AB$	Proof	2	B1 for $BD = DC$ and $BC = AB$ B1 for justification of these statements and completion of proof



1380/3H				
Question	Working	Answer	Mark	Notes
25	(a)		3	$\frac{1}{2\frac{1}{2}} + \frac{1}{3\frac{1}{3}} = \frac{1}{f}$ $\frac{2}{5} + \frac{3}{10} = \frac{1}{f}$ $\frac{7}{10} = \frac{1}{f}$
	(b)		2	$\frac{1}{u} = \frac{1}{f} - \frac{1}{v}$ $\frac{1}{u} = \frac{v-f}{fv}$
		$u = \frac{fv}{v-f}$		<p>M1 <math>\frac{1}{2\frac{1}{2}} + \frac{1}{3\frac{1}{3}} = \frac{1}{f}</math></p> <p>M1 correct addition of the fractions to get <math>\frac{7}{10}</math> oe</p> <p>A1 for <math>\frac{10}{7}</math> oe</p> <p>M1 <math>\frac{1}{u} = \frac{v-f}{fv}</math> oe or <math>vf + uf = uv</math> oe or <math>\frac{1}{u} = \frac{f-v}{fv}</math> or</p> <p><math>u = \frac{1}{\frac{v-f}{fv}}</math> or <math>u = \frac{1}{\frac{1}{f} - \frac{1}{v}}</math></p> <p>A1 <math>u = \frac{fv}{v-f}</math> or <math>u = \frac{-fv}{f-v}</math></p>
26	(a)		2	B2 cao (B1 for $f(x - 4)$ or $y = f(x + a)$ , $a \neq -4$ , $a \neq 0$ )
	(b)		2	B2 cao (B1 cosine curve with either correct amplitude or correct period, but not both)

Examples:



26.

