Question			Answer	Marks	Part marks and guidance	
1	(a)		103	1		
1	(b)		357	2	**M1** for any correct complete method shown	For M1 condone 1 arithmetic error
2	(a)		9 or −9	1		
2	(b)		4	1		
3	(a)		10	1		
3	(b)		7	1		
3	(c)		5	1		
4	(a)		15 or 15000**g** clearly identified	2	**M1** for figs 18 ÷ 6 [×5] **oe**	May be implied by 3 [×5]
4	(b)		3.51 or 351p clearly identified	1		
4	(c)		[0].03 oe	1		accept trailing zeros eg 0.030…
5	(a)		$\frac{3}{10}$	1	Accept equivalent fractions	Isw further attempts to cancel
5	(b)		[0].25	1		accept trailing zeros eg 0.250…
6			0.61 5.099 5.9 5.977 5.98	2	**B1** for 4 in correct order	Use “cover up” method and accept trailing zeros eg 5.980
7	(a)		$2\frac{1}{4}$	1	Accept equivalent fractions	Isw further attempts to cancel Do not accept $1\frac{5}{4}$

Question			Answer	Marks	Part marks and guidance	
7	(b)		$\frac{3}{16}$	1	Accept equivalent fractions	Isw further attempts to cancel
7	(c)		$\frac{1}{6}$	1	Accept equivalent fractions	Isw further attempts to cancel
8	(a)	(i)	13	2	**M1** for ordering at least the first 3 or the last 3 values	11, 11, 13, 22, 58
8		(ii)	47	2	**B1** for only 11 and 58 identified.	
8	(b)		17	3	**M2** for 6 × 22 –(13 + 58 + 22 + 11 + 11) **oe** or **M1** for 6 × 22 or for 13 + 58 + 22 + 11 + 11 oe	 May be implied by 132 May be implied by 115
9	(a)		22	2	Accept 21.2 to 22.8 **M1** for 5.3 to 5.7 [cm] seen Or 53 to 57 [mm] seen	 May be seen on diagram or on the answer line
9	(b)		063 to 067	1		Condone eg 65
9	(c)		Lighthouse indicated correctly 4.3 to 4.7 cm from P and on bearing of 198 to 202 from Q	2	**M1** for either condition correct	Allow unambiguous indication if a cross is not seen For M1 allow an arc/circle centre P with radius 4.3 to 4.7 cm Use overlay as a guide
10			~~44~~	3	**M2** for 66 ÷ (15 ÷ 5) [×2] oe or **M1** for 15 ÷ 5 or 5 ÷ 15 or 5 × 66 oe	Ignore units throughout May be implied by 22

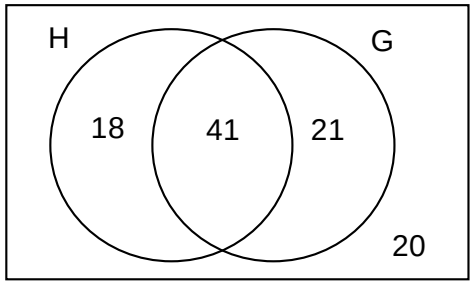
Question			Answer	Marks	Part marks and guidance	
11	(a)		20	3	**M2** for $\frac{216-180}{180}$ [$\times 100$] **oe** or **M1** for $\frac{216}{180}$ [$\times 100$] **oe** or 216 – 180 **oe**	eg $\frac{36}{180}$ or $\frac{3600}{180}$ or 0.2 or $\frac{1}{5}$ M1 implied by 1.2 or 120 or $\frac{6}{5}$
11	(b)		1.17	1		
12	(a)		Shows 85% and 76%	2	**M1** for 85% or 0.85 or $\frac{85}{100}$ or 76% or 0.76 or $\frac{76}{100}$ If 0 scored **SC1** for both 85 and 76 **seen**	Condone both stated as equivalent decimals or both stated as fractions over 100 for 2 marks.
12	(b)		80 nfww	3	**M2 for** $\frac{17+19}{20+25}$ x 100 **oe** OR **M1** for $\frac{17+19}{20+25}$ **oe** **M1 dep** for $\frac{4}{5}$ or $\frac{8}{10}$ or $\frac{80}{100}$	$\frac{85\% + 76\%}{2}$ or $\frac{85+76}{200}$ or leading to an answer of 80 scores 0. Allow 36 out of 45
13	(a)	(i)	$y = 2$ sketched correctly with 2 indicated on y-axis as y-intercept	2	**M1** for a horizontal line	Condone good freehand
13	(a)	(ii)	$y = x + 1$ sketched correctly with 1 indicated as y-intercept	2	**M1** for any straight line with positive gradient or for y- intercept at 1	Condone good freehand

Question			Answer	Marks	Part marks and guidance	
13	(a)	(iii)	*y*-value where they cross has to be 2 **oe**	1		lsw extra statements. Accept eg (2, 3) is not on y = 2 as the y coordinate is 3 they cross at (1, 2) they cross when x = 1 See AG
13	(b)		Should go through (0, 0) **oe** Should be a curve **oe** No numbers on axis/axes **oe** It is symmetrical **oe**	2	**B1** for each to a max of 2	If more than two comments, mark the best two See AG
14	(a)	(i)	4 : 5	1		Accept 1 : 1.25 or 1 : $\frac{5}{4}$ or 0.8 : 1 or $\frac{4}{5}$: 1
14	(a)	(ii)	1 : 7 final answer	3	**B1** for 2100 [ml] or 0.3[l] seen **M1** for correct partial simplification of *their* ratio	A correct partially simplified ratio in the same units implies B1 M1 eg 100 : 700
14	(b)		2 nfww	3	**B1** for sin 30 = ½ oe **B1** for tan 45 = 1	B marks can be implied if seen on the correct side of a ratio

Question			Answer	Marks	Part marks and guidance	
15			10 × 6 × 8	**M1**		May be implied by 480
			Makes use of rounding 8.95 to 9 or 19.99 to 20	**M1**		May be implied by use in a calculation but must be used correctly
					Alternative Method	
			60 × 9 **oe** or 12 × 20 **oe**	**M1**	**M1** for 60 × 9 **oe** or 10 × 20 **oe**	
			1260	**A1**	**A1** for 1220	
			1000 + 60 × 5 **oe**	**M1**		May be implied by 1300
			Correct decision for 1300 and their estimated costs	**B1**		Their estimated costs means 8.95 **and** 19.99 not used
16	(a)		She added the terms **oe** $2a^3$	**1** **1**		In all 3 parts any incorrect statement treat as choice Allow correct descriptions of what Martina should have done in each part See AG
16	(b)		She divided the powers **oe** x^8	**1** **1**		See AG
16	(c)		She squared (½ × 6 × 5) **oe** 75	**1** **1**		See AG

Question			Answer	Marks	Part marks and guidance	
17			Line drawn parallel to AB, 1.8 to 2.2 cm away that meets AD and *their* bisector of angle BCD	**M1**		Condone dotted lines throughout Use overlay as a guide If no angle bisector *their* horizontal line must at least touch the left hand boundary of angle bisector overlay
			Bisector of angle BCD drawn with correct arcs	**M2**	**M1** for correct bisector with no/incorrect arcs	±2°
			Arc centre D with radius 2.8 to 3.2 cm	**M2**	**M1** for any arc centre D	Arc must meet AD and DC for 1 or 2 marks
			Correct region shaded	**A1**	Dep on **M1 M1 M2**	Accept region clearly identified
18			$(x + 4)(x + 5)$	**M2**	**M2** for $(x + 4)$ and $(x + 5)$ or **M1** for $(x + a)$ and $(x + b)$ where $ab = 20$ or $a + b = 9$ or $x(x + 4) + 5(x + 4)$ or $x(x + 5) + 4(x + 5)$ If **M0** scored **SC1** for $x + 4 = 0$ and $x + 5 = 0$	For M2 or M1 condone omission of final bracket .
			-5 and -4 nfww	**B1**	**STRICT FT** *their* factors dep on two brackets in factors. If 0 scored **SC1** for answers ±5 and ±4	

Question			Answer	Marks	Part marks and guidance	
19			300	5	**M4** for 36 ÷ 0.12 **oe** or **M1** for 0.3 x 0.4 **oe** **A1** for 0.12 **oe** OR **M1** for 36 ÷ 0.3 **oe** **A1** for 120 **M1** for *their* 120 ÷ $\frac{2}{5}$ **oe** seen **A1FT** for *their* 120 ÷ $\frac{2}{5}$ **oe** correctly evaluated seen to nearest integer or better	eg Answer 420 from 300 + 120, gets M1A1M1A1
20			Select a pencil from the bag and record results **and** put it back in the bag **oe**	1		Steps may be combined together
			Repeat trial at least 10 times	1		Accept many, a lot etc clearly implied
			Find rel frequency or prob	1	eg $\frac{\text{no of red pencils}}{\text{no of trials}}$ **oe** or no of red pencils recorded and no of trials recorded or number of greens recorded oe	oe eg if number of trials = 20 and then number of reds × 5 or no of red pencils × $\frac{100}{\text{no of trials}}$ **oe** then allow both marks
			Rel freq × 100 **oe**	1		
21	(a)		Rhombus	1		Allow kite, parallelogram or trapezium Do *not* allow quadrilateral or polygon

Question			Answer	Marks	Part marks and guidance	
21	(b)		105	4	**M1** for DEA = 60 or AFB = 60 or any angle within either equilateral triangle identified as 60 **M2** for DAE = 15 or **M1** for *their* EAF ÷ 4 soi **B1FT** *x* = 180 – *their* AED – *their* DAE	Angles may be identified in working or seen on the diagram May be implied by 15 : 60 If final answer not 105, MAX of 3 marks
22	(a)			3	**B2** for 18 or 41 or 21 correctly placed. or **B1** for the total of H = 59 or the total of G = 62 or all 3 sections add up to 80	Do not accept a blank region to represent 0
22	(b)		$\frac{39}{100}$ **oe**	2	**FT** (*their* 18 + *their* 21)/100 **M1** for *their* 18 + t*heir* 21 If 0 scored, **SC1** for answer $\frac{80}{100}$ **oe**	*their* 18 + *their* 21 must be < 100 for 2 or 1 mark
23			*y* = 4*x* + 1 final answer	3	**B2** for final answer 4*x* + 1 OR **M2** for using (1, 5) correctly in *y* = 4*x* + *c* **oe** or **M1** for *y* = 4*x* + c **oe** or *y* = 4*x* + k **oe** k any numerical value	Allow equivalent 3 term equation for 3 marks If y = 4x + c and y = mx + 4 are seen, mark as choice