Question			Answer	Marks	Part marks and guidance	
1	(a)	(i)	5	1		
1	(a)	(ii)	10	1		
1	(b)		Two of 11, 13, 17, 19	2	**B1** for one correct and one other or more than two of 11, 13, 17, 19	
2	(a)	(i)	3.5	1		Accept 3.50 or 3½
2	(a)	(ii)	1520	1		
2	(b)		8.7	2	**B1** for 3 [cm] or 57 [mm] Or **M1** for answer of 87 [mm]	
3	(a)	(i)	6	1		
3	(a)	(ii)	8	1		
3	(b)	(i)	[0].4 final answer **oe**	1		
3	(b)	(ii)	3.4 final answer **oe**	1		
4	(a)		$\frac{4}{25}$	2	Mark final answer **M1** for $\frac{16}{100}$ or equivalent fraction	
4	(b)		0.35	2	**M1** for correct first step to convert to decimal e.g. $\frac{35}{100}$ seen or attempt to divide 7 by 20	
5	(a)	(i)	Equilateral	1		
5	(a)	(ii)	Rhombus	1		

Question			Answer	Marks	Part marks and guidance	
5	(b)	(i)	Draws both lines of symmetry correctly	1		Mark intention
5	(b)	(ii)	She is incorrect **oe** and gives rhombus or parallelogram as the other quadrilateral	2	**M1** for correct description of RS of any other quadrilateral e.g square has order 4	For M1 ISW other comments that do not refer to symmetry See AG
5	(c)		Arrows facing the same way added to AB and DC	1		Condone more than one arrow facing the same way on AB and DC
6			7 50 [am] **oe**	4	**B2** for 2 [hours] or **M1** for 100 ÷ 50 **M1** for 10 10 [am] – *their* 2 h – 20 mins	B2 may be implied by 120 mins
7	(a)		No and statement referencing 10 and 12 **oe**	1		Referencing 10 and 12 could be implied by eg United only scored 2 more **oe** United's bar would be a height of 20 **oe** Do not accept 'scale should go up in 2s' See AG
7	(b)		Start the vertical scale from 0 **oe**	1		Accept other values <8, or suggestion of inserting zig-zag on 'goals' axis line See AG
7	(c)		All teams played the same number of games **oe**	1		United may have played less games
8	(a)		3^4	1		

Question			Answer	Marks	Part marks and guidance	
8	(b)		64 [×] $\frac{1}{4}$ 16 is a square number **oe**	**2** **1dep**	**B1** for each correct value Dep on 2 previous marks earned	Allow B1 for $2^6 \div 4$ or 4 seen as a denominator or 0.25 for $\frac{1}{4}$ Accept $16 = 4 \times 4$ or $16 = 4^2$
9	(a)		4 : 5	**1**		
9	(b)		1 : 3	**3**	**B1** for 0.6 [kg] or 1800 [g] seen **M1** for correct partial simplification of the given ratio or *their* first ratio	
10	(a)		$5b^4$	**1**		Condone $5 \times b^4$
10	(b)		x^{12}	**1**		
11	(a)		30	**2**	**M1** for $\frac{6}{100} \times 500$ **oe**	Answer 530 implies M1
11	(b)		650	**2**	**M1** for 500 + 5 × *their* (a)	
12			70	**3**	**M2** for 56 ÷ 0.8 **oe** or **B1** for 0.8[0] **oe** seen or for 56 associated with 80% **isw**	For B1 0.8 **oe** seen allow fraction but not just for 80%

Question			Answer	Marks	Part marks and guidance	
13			0.28 and 0.14	**5**	**B4** for 0.14 identified as white or for 0.28 and 0.14 reversed or **M1** for 1 – (0.34 + 0.24) **A1** for 0.42 **M1** for *their* 0.42 ÷ (1 + 2) **A1** for 0.14	Allow equivalent fractions or percentages Condone lack of % sign for M marks A1 Implies previous M1 or may be implied by *their* y + *their* w = 0.42
14	**(a)**	**(i)**	$x = 3$ sketched correctly with 3 indicated on x-axis as x – intercept	**2**	**M1** for a vertical line or a dotted vertical line passing through 3	Condone good freehand
14	**(a)**	**(ii)**	$y = x^2 + 1$ sketched correctly with 1 indicated as y-intercept	**2**	**M1** for correct shape or y-intercept at 1 but not y = 1	Condone good freehand
14	**(b)**		It should not touch the axes **oe** It should also have a curve in the 3rd quadrant **oe**	**1** **1**		Accept responses on the graph
15	**(a)**		$2a + 3b$ final answer	**2**	**B1** for $2a$ or $3b$ in answer If 0 scored, **SC1** for correct answer seen then spoilt	 Eg $2a + 3b = 5ab$
15	**(b)(i)**		$4x + 12$ final answer	**1**		
15	**(b)(ii)**		$x^2 + 3x – 10$	**2**	Mark final answer **B1** for 3 of x^2, $5x$, $–2x$, $– 10$	 [+]$3x$ counts as two terms For B1 could be in a grid

Question			Answer	Marks	Part marks and guidance	
16			$4x - 10 = 11 - 2x$ $4x + 2x = 11 + 10$	**M1** **M1**	or better	Alt method M1 for $(4x - 10)(11 - 2x) = 2(4x - 10) + 2(11 - 2x)$ or better M1 for $2x^2 - 15x + 28 = 0$
			$x = 3.5$	**A1**		
			[Dimension of square =] 4	**B1**	Correct or **FT** 4 × *their x* – 10 or 11 – 2 × *their x*	Dep on use of algebra Identifying 4 as the side of the square may be implied by later calculations
			One perimeter/area calculation correctly evaluated	**B1**	**FT** 4 × *their* length of square or (*their* length)^2	B1FT Dep on previous B. Allow embedded solution
			Perimeter and area both shown to be 16	**A1**		Dep on all previous marks earned and that only x = 3.5 leads to perimeter = area
17	**(a)**		Correctly completes table 7 6 7	**1**		
17	**(b)**	**(i)**	$\frac{13}{25}$ **oe**	**2**	**B1FT** for *their* correct numerator **B1** for fraction with denominator 25	In (b)(i) and (ii), not ratio or words, isw eg $\frac{13}{25}$, likely but not $\frac{13}{25}$, unlikely isw cancelling/conversion to other forms FT numerator 12 + any evens in *their* (a)
17	**(b)**	**(ii)**	$\frac{14}{25}$ **oe**	**2**	**FT** their correct numerator / 25 **B1FT** for *their* correct numerator but denominator incorrect	FT numerator 13 + any multiples of 3 or 4 in *their* (a)

Question			Answer	Marks	Part marks and guidance	
18			5.6[0] with correct working	6		"Correct working" requires full evidence of M1A1 AND M1 or convincing pictorial/alternate convincing approach For method accept equivalent decimals or percentages (to 2 sf)
					M2 for $\left(\frac{1}{3}+\frac{2}{5}\right)\times 10$ **oe**	M2 could be split into $\frac{1}{3}\times 10+\frac{2}{5}\times 10$
					or **M1** for $\frac{1}{3}\times 10$ or $\frac{2}{5}\times 10$	The method may be shown pictorially
					A1 for $\frac{110}{15}$ **oe**	For A1 eg 7⅓, accept 4 + 3⅓ oe, 733[..]% A1 implies M2
					or	
					M1 for $\frac{1}{3}+\frac{2}{5}$ **oe**	The method may be shown pictorially
					A1 for $\frac{11}{15}$ **oe**	Implies M1
					AND	
					M1 dep for *their* improper fraction/decimal/mixed number rounded up to next integer	Dep on their improper fraction ≠ integer Must show a more accurate value first, could be in two parts eg 4 + 3⅓ then 8
					M1 for *their* integer multiplied by 70 or 0.7	This may be earned by those with wrong working then doing eg 8 x 0.7. Must see a calculation implying an integer × 70 or 0.7, could be in several parts
					If 0 scored, **SC1** for answer 5.60 or 5.6	

Question			Answer	Marks	Part marks and guidance	
19			6 with correct working	5		"Correct working" requires evidence of at least B2 AND B1 or alternate convincing approach
					B2 for 40 (LCM) identified or **M1** for multiples of 8 and 20 up to at least 40	Eg attempts to count in 40 May be seen as clock times eg 0808, 0816, 0824,… 8.20, 8.40, 9.00,… Condone 1 error in either list FT other values Accept also if starting from 0801
					AND	
					B2 for indicates 40, 80, 120, 160, 200, 240	Implies previous B2 Accept as times [0800], 8.40, 9.20, 10.00, 10.40, 11.20, 12.00 Condone [0801], 8.41, 9.21, 10.01, 10.41, 11.21, 12.01
					or **B1** for [time =] 269 **oe** or 270 **oe** **M1** for *their* time ÷ 40 **oe**	eg Accept 4 hours 30 mins For M1 accept 4 correct multiples of 40 listed Condone 1 error FT other values Accept as times as above
					If 0 scored, **SC1** for answer 6	

Question			Answer	Marks	Part marks and guidance	
20			C (24, 9) D (10, 2)	**5**	**B4** for three correct ordinates or **B3** for two correct ordinates or **B2** for one correct ordinate from 24, 10, 2 or for longer length of triangle = 7 **soi** or **B1** for 9 as *y*-coordinate for C or for shorter length of triangle = 3 **soi** OR **M1** for long = 17 – 4 – 2 × *their* short **oe** **A1FT** for C (4 + 2 × *their* short + 2 × *their* long, 9)) **A1FT** for D (4 + 2 × *their* short, 9 – *their* long)	For part marks, check ordinates first (may be on diagram if answer line blank) .If B2 or fewer check alt method and mark to candidates' advantage B4, B3, B2, B1 May be on diagram For M1 and A1FT, *their* short and *their* long needs to be clear in working or on diagram
21			[*x* =] –1 [*y* =] 4	**4**	**M1** for attempt to equate coefficients **M1** for correct method to eliminate 1 variable **A1** for 1 correct solution If A0, **SC1** for a pair of values that satisfy one of the original equations	ISW correct answers seen in working then reversed Condone 1 arithmetic error – a sign error is not an arithmetic error Condone 1 further arithmetic error <u>Alt method</u> M1 for rearrangement of one equation to make either *x* or *y* the subject M1 for correct substitution of *their* rearrangement into the other equation

Question			Answer	Marks	Part marks and guidance	
22			For Monday, does not rain should be 1 – 0.55 **oe** For Tuesday, 0.25 is incorrectly placed on the does not rain branch **oe** A pair of branches is missing for Tuesday after does not rain on Monday **oe**	3	**B1** for each	After each correct statement isw eg 0.55 + 0.35 does not equal 1 Monday not rain should be 0.45 eg For Tuesday the probabilities are placed the wrong way around 0.25 should be on the rain branch eg There should be two more branches for Tuesday See AG
23			$\sqrt{\frac{24}{\pi}}$	4	**M2** for [r^2 =] $\frac{360\times 8}{120\times \pi}$ or better or **M1** for $\frac{120}{360}\times \pi r^2$ [= 8] **oe** or better **A1** for [r^2 =] $\frac{24}{\pi}$	For method condone use of 3.1, 3.14, etc used for π M1 implied by $\pi r^2 = 24$ Implied by 7.6…