Question			Answer	Marks	Part marks and guidance	
1	a		Trapezium	1		Allow correct embellishment
	b		Sphere	1		
2	a		3 5 6 15 in any order	2	**B1** for two or three correct factors	
	b		5	1		
3	a	i	(4, 9)	1		
	a	ii	($^-$2, $^-$3)	1		
	b		Point plotted at (7, $^-$2)	1		
	c		$y = 2x + 4$ final answer	2	**B1** for $2x + 4$ or $y = 2x$ +/- c $c \neq 1$	
4	a	i	200	1		
	a	ii	150	2	**B1** for 275 or 125	
	a	iii	50 represented on the pictogram	3	**B2** for 50 as answer Or **M1** for 250 + 125 + 200 + 275 soi by 850 **M1** for 900 – *their* 850	Horizontal or vertical *Their* 850 must come from addition of 4 numbers. *Their* 850 must be less than 900

Question			Answer	Marks	Part marks and guidance	
	b		$\frac{2}{5}$ nfww	**4**	**B3** for $\frac{8}{20}$ oe nfww or **B2** for identifying 2,3,5,7,11,13,17,19 as being prime (and no non-primes identified) or **B1** for identifying 2,3,5,7,11,13,17,19 identified as being prime with no more than 2 errors and **M1** for $\frac{their\ number\ of\ primes}{20}$	e.g. 1, 2, 3, 5, 7,11,13,17,19 1, 2, 5, 7,11, 13,17,19 (errors; 1 included, 3 omitted) 3, 5, 7,11,13,17,19 (omission of 2) *Their* number of primes must be less than 20
	c		57.8[0]	**3**	**M2** for 0.85 × 68 oe or **M1** for 0.15 × 68 implied by 10.2[0]	68 – (0.15 × 68) If non calculator method, it must be a full method.
5	**a**		2*a*	**1**		
	b		11*g* + 3*f* final answer	**2**	**B1** for 11*g* or 3*f* in answer	
6			$x < 2$ or $2 > x$	**2**	**B1** for $x \leq 2$ or $x > 2$	
7	**a**		3(2 + 3*y*) final answer	**1**		Condone missing final bracket
	b		2*x*(*x* + 3) final answer	**2**	**B1** for *x*(2*x* + 6) or 2(x^2 + 3*x*)	Condone missing final bracket

Question			Answer	Marks	Part marks and guidance	
8	a		9	2	**M1** for 379 ÷ 45 soi by 8.4...	Allow M1 for repeated addition or subtraction if method shown. If only numbers listed addition must reach 360 45, 90, 135, 180, 225, 270, 315, 360. subtraction must reach 19 334, 289, 244, 199, 154, 109, 64,19
	b	i	Shows $\frac{35}{50}$ [= 0.7] or $\frac{15}{50}$ = 0.3, 1 – 0.3 [= 0.7]	2	**M1** for 35 Or **M1** for $\frac{10}{50} + \frac{5}{50}$ oe or $\frac{15}{50}$	Allow 35 ÷ 50 Allow 15 ÷ 50
		ii	States or gives a reason why past games may not be representative/relevant to this game	1		eg Past opponents may be a different standard eg Past games may have been played at home eg Best players may now be injured

Question			Answer	Marks	Part marks and guidance	
9			12.6[0]	5	**B4** for 6.6[0] nfww OR (working with *x* as cost of a child) **M1** for $x + 6$ **M1** for $x + 6 + x + 6 + x + x + x = 45$ **M1** for $5x + 12 = 45$ OR (working with *y* as cost of adult) **M1** for $y - 6$ **M1** for $y + y + y - 6 + y - 6 + y - 6 = 45$ **M1** for $5y - 18 = 45$ **M1** for $5y = 63$ OR **M1** for $a = c + 6$ or $a = x + 6$ or $c = a - 6$ **M1** for $2a + 3c = 45$ oe **M1** for correct method to eliminate one variable. Allow one arithmetic error OR **M2** for 45 - 12 may be implied by 33 **M1** for $33 \div 5$	

Question			Answer	Marks	Part marks and guidance	
10			16 nfww	**5**	**M2** for 12 as area of triangle nfww or **M1** for (6 × 4) ÷ 2 AND **M1** for *their* 12 × 4. *Their* 12 must be from an attempt at the area of the triangle **M1** for *their* 48 ÷ 3	 48 ÷ 3 ÷ 2 = **M0**
11			97.75	**6**	**M1** for 4 × 8.5 implied by 34 **B1** for 5 [hours] **M2** for 8.5 ×1.5 × *their 5* implied by 63.75 or **M1** for 8.5 ×1.5 implied by 12.75 or *their* 5 ×1.5 implied by 7.5 or *their* 5 × 8.5 implied by 42.5 and **M1** for *their* Friday total + *their* Saturday total Alternative method **M1** for 9.5 × 8.5 implied by 76.5[0] **B1** for 5 [hours] **M1** for 0.5 × 8.5 implied by 4.25 **M1** for *their* 5 × *their* (0.5 × 8.5) implied by 21.25 **M1** for *their* (9 × 8.5) + *their* ((5)× 0.5 ×8.5)	 63.75 may imply B1 M2 .

Question			Answer	Marks	Part marks and guidance	
12			150 cm^2	**4** **1**	**M1** for $\sqrt[3]{125}$ may be implied by 5 **M1** for *their* 5^2 **M1** for *their* $5^2 \times 6$	This could be on a diagram
13			Shows correct working leading to 34.9[9...] seen [rounding to 35]	**3**	**M2** for $\tan^{-1}\frac{14}{20}$ or **M1** for $\tan[=]\frac{14}{20}$ or $\tan[=]0.7$ or $\tan[x][=]\frac{14}{20}$ or 0.7	If using Pythagoras , sin or cos, must have full method. Accept change of variable
14			Robert with correct working and reason	**4**	**B1** for 6.5 hours or 6 ½ hours **M1** for 760 ÷ 9 implied by 84[.4] **M1** for 559 ÷ *their* 6.5 implied by 86 Accept alternative method e.g **B1** for 540 and 390 **M1** for 760 ÷ 540 implied by 1.407.. or 1.41 **M1** for 559 ÷ 390 implied by 1.43[3]	Accept correct working in comparable alternative units
15			Accept any correctly matched pair where Andrea > Joel and values quoted are 165 < Andrea < 165.5 165 ≤ Joel < 165.5	**3**	**B1** for value 165 < Andrea < 165.5 **B1** for value 165 ≤ Joel < 170	For B1 if choice of values given all must be in range, unless acceptable value(s) indicated Values must be clearly associated with either Andrea or Joel as appropriate.

Question			Answer	Marks	Part marks and guidance	
16			Correct working leading to correct reason e.g. yes and 21.[3..] and 24 or 1280 and 1440 or [80 and] 90 or 2.6[..] or 2.7 [and 3] or 7.[1..] and 8	**5**	**M1** for unit calculation e.g. 48 ÷ 3 **M1** for scale factor e.g. 80 × 16 *possibly in one stage* **M1** for first conversion e.g. 1280 ÷ 60 **M1** for second conversion e.g. 3 × 8 *possibly in one stage* **A1 dep on M3** or **M4** for 'Yes' and two correct comparative figures	Accept any correct method e.g. **M1** for 48 ÷ 3 may by implied 16 **M1** for 80 × *their* 16 may by implied 1280 **M1** for *their* 1280 ÷ 60 may by implied by 21.33… **M1** for 3 × 8 may by implied by 24 **A1** for yes and 21.33… < 24 Allow 21 hours 20 minutes
17	**a**		450 000	**1**		
	b		Singapore	**1**		
	c		Incorrect it is 3000 or 2969 to 2970 times bigger or Incorrect 769 0000 is 3000 or 2969 to 2970 times bigger than 2590 oe or Incorrect, 3×10^3 or 3000 times larger or Incorrect and evaluates Luxembourg's area × 3 or Australia's area ÷ 3 with comment comparing the values	**2**	**M1** for $\frac{7.69\times10^6}{2.59\times10^3}$ oe or **M1** for $(2.59 \times 10^3) \times 3 = 7.77[0] \times 10^3$ or $2590 \times 3 = 7770$ or $(7.69 \times 10^6) \div 3 = 2.563333[3...] \times 10^6$ or 7 690 000 ÷ 3 = 2563333[.3...] or **M1** for 10^3 or 1000 times larger	Allow equivalent e.g wrong 7690000 ÷ 2590 = 2969.11 Figures must be in the same form for comparison, may be on the table

Question			Answer	Marks	Part marks and guidance	
	d		2.5×10^7	**4**	**B3** for 25 000 000 or $2.5[0..] \times 10^7$ or $2.4[7..] \times 10^7$ or 2.48×10^7 or **B2** for 24790 000 or 24.79×10^6 oe or **M1** for $1.71 \times 10^7 + 7.69 \times 10^6$ oe implied by figs 2479 If 0 or 1 scored **SC1** for *their* value rounded to 2 sf	The unrounded value must be seen
18	**(a)**		50×30 $\frac{50 \times 30}{1+2+3}$ [×1, 2 or 3] $2 \times 250 = 500$	**1** **1** **1**	Accept any correct method e.g. **M1** for $\frac{2}{1+2+3} = \frac{2}{6}$ **M1** for $\frac{2}{6} \times 50$ or 50/3 **M1** for $\frac{50}{3} \times 30 = 500$ Alternative method **M1** for $30 \div 6 = 5$ **M1** for *their* $(30 \div 6) \times 2$ **M1** for $50 \times 10 = 500$	watch for wrong method 50 x 20 = 1000. 1000÷2 = 500 Mark to candidates advantage

Question			Answer	Marks	Part marks and guidance	
	(b)		32	**5**	**M1** for $\frac{250}{25}$ *or* $\frac{500}{20}$ *or* $\frac{750}{15}$ **M1** for *their* 10 × 5.5[0] or *their* 25 × 2[.00] or *their* 50 × 3.9[0] **M1** for *their* 10 × 5.5[0] + *their* 25 × 2[.00] + *their* 50 × 3.9[0] **M1** for $\frac{396}{their\ 300}$ or $\frac{396 - their\ 300}{their\ 300}$ Alternative method **M1** for $\frac{\frac{30}{6}\times 1}{25}$ or $\frac{\frac{30}{6}\times 2}{20}$ or $\frac{\frac{30}{6}\times 3}{15}$ or $\frac{396}{50}$ **M1** for 5.5[0] × *their* [0].2 or 2[.00] × *their* [0].5 or 3.9[0] × *their* 1 **M1** for *their* (5.5[0] × [0].2) + *their* (2[.00] ×.[0].5) + *their* (3.9[0] × 1) **M1** for $\frac{7.92}{their\ 6}$ or $\frac{7.92 - their6}{their6}$	**M1** may be implied by 10 or 25 *(no. of bags/part bags of cement, sand, stone*) **M2** may be implied by 55 and 195 (*cost of cement, sand, stone*) **M3** may be implied by 300 or 6 nfww (*total production cost*) **M1** may be implied by 0.2, 0.5 or 1 or 7.92 *(no. of bags/part bags of cement, sand, stone or price of 1 bag)* **M2** may be implied by 1.1[0], 1[.00] or 3.9[0] (*cost of cement, sand, stone for 1 bag*) **M3** may be implied by 6 nfww (*total production cost of 1 bag*)
19	**(a)**		2 points plotted correctly	**1**		tolerance ± ½ small square
	(b)		positive	**1**		Ignore embellishments

Question			Answer	Marks	Part marks and guidance	
	(c)	(i)	acceptable ruled line	1		see overlay, it must be at least from x = 10 to x = 45 and between (10,4) to (10,12) and (45,40) to (45,50) if more than 1 line, both must be in tolerance, ignore horizontal and vertical lines.
		(ii)	35 to 44	1		for answers out of tolerance FT *their* ruled line with positive gradient with tolerance ± ½ small square
	(d)		42 or 41.7 or 41.66… or 41.67	4	**B1** for 5 **M1** for $\frac{their\ 5}{12}$ **M1** for (*their* $\frac{5}{12}$)× 100 If 0 scored **SC2** for answer of 30 from $\frac{3}{10}$ or 36[.36…] or 36.4 from $\frac{4}{11}$	*their* 5 must be less than 12 implied by [0].4166…
20	(a)		Accept any correct reason e.g. No as lengths are unknown or lengths may be double each one or triangles are similar	1		See exemplars in appendix
	(b)		First correct reason Second correct reason Third correct reason and SAS	1 1 1	Reasons are Angle [I]G[H] = angle [L]J[K] GH = JK GI = JL	Reasons can be given in any order Allow same angle, (36), but lines must be identified