1	Yes, supported by correct working	P1	for 36 : 48 oe **OR** $\frac{36}{84}$ oe **or** $\frac{48}{84}$ oe	Relating to drama group 1
		P1	for $\frac{4}{7}$ **or** 3 : 4 oe (for group 2) **OR** ($\frac{36}{84}=\frac{3}{7}$) **or** ($\frac{48}{84}=\frac{4}{7}$) **or** 84 × 3 ÷ 7 (= 36 boys) **or** 84 × 4 ÷ 7 (= 48 girls) **or** N × 3 ÷ 7 and N × 4 ÷ 7	Relating to drama group 2 N can be any number (other than 84) of students in the 2nd group
		A1	for Yes with both ratios 3 : 4 oe **or** for a correct pair of fractions and stating they are equivalent.	Both equivalent forms of the ratios (fractions) must be the same "Yes" may be implied from working

2	33	P1	for relating 24 to 8 parts, **or** (1 part =) 24 ÷ 8 (= 3) **or** 15 – 7 (= 8) **or** starts to use a build-up method, eg (8 :) 14 : 30	8 parts = 24
		P1	for (15 – 4) **and** (24 ÷ 8) **or** 15 × 3 (= 45) **and** 4 × 3 (= 12) **or** for 12 (: 21) : 45	
		A1	cao	

3	(a)	40	M1	2 ÷ (2+3) × 100 (=40) or build up to (and shows) 40:60 oe **or** for sight of $\frac{2}{5}$ oe **or** 100 ÷ 5 (=20)	
			A1	cao	
	(b)	20 : 80	M1	100 – 20 (=80) or 80 : 20 oe	
			A1	20 : 80 oe	Accept any equivalent ratio; award full marks if an acceptable ratio is given and then incorrectly simplified.

4	30	P1	for 160 ÷ (3+7) (= 16) **or** $\frac{3}{3+7}$ (= $\frac{3}{10}$)	
		P1	for "16" × 3 (= 48) **or** "$\frac{3}{10}$" × 160 (= 48)	
		P1	for a correct step using 48 eg "48" ÷ 8 (= 6) **or** "48" × 25 ÷ 100 (= 12) **or** (indep) for combining $\frac{1}{8}$ and 25%, eg $\frac{1}{8}+\frac{1}{4}$ (=$\frac{3}{8}$) or "0.125" + "0.25" (= 0.375) or "12.5"(%) + 25(%) (= 37.5(%))	
		P1	for a complete process to find the number of petrol cars, eg "48" – "6" – "12" oe **or** (1 – "$\frac{3}{8}$") × "48" oe **or** $\frac{3}{10}$ × (1 – "$\frac{3}{8}$") × 160 oe	
		A1	cao SC B2 for an answer of 100 if P0 scored	Award no marks for a correct answer with no supportive working

5	3 : 2	P1	for a process to find either volume eg 3^3 (= 27) or 4^3 (= 64)	
		P1	for showing density **A** = 81 ÷ "27" (= 3) or density **B** = 128 ÷ "64" (= 2)	
		A1	for 3 : 2 oe	Ignore units quoted

6	(b) 10 : 56	M1	for 10 or 56 identified	56 : 10 implies this mark only
		A1	for 10 : 56 or any other equivalent ratio	Accept 1 : 5.6

7	1.5	P1	for process to develop 3 algebraic expressions, eg. (R =) n, (S =) $2n$, (T =) $2n - 6$, oe, at least two must be correct. **or** for selecting 3 values satisfying the given criteria, eg. (R =) 10, (S =) 20, (T =) 14	
		P1	for process to sum 3 algebraic expressions and equating to 54, eg. n + "$2n$" + "$2n - 6$" = 54 **or** for finding the correct sum of their values eg. "10" + "20" + "14" = 44	
		P1	for start of process to solve the correct linear equation, eg. $5n = 54 + 6$ ($n = 12$) **or** for 12, 24, 18	
		P1	for "12" : 2 × "12" – 6 oe eg 12 : 18 oe or 18 : 12 linked to T, R	
		A1	for 1.5 or $\frac{3}{2}$ or $1\frac{1}{2}$	Accept 1 : 1.5 etc as answer

8	(a)	60	B1	cao	May be seen on diagram
	(b)	50	B1	cao	May be seen on diagram
	(c)	80 : 200	P1	for process to **use** the number of children, 80 or the total number of men and women, 200 in a ratio **or** for $\frac{80}{200}$	
			A1	for 80 : 200 oe	Award for a correct ratio even if subsequently incorrectly simplified.

9	(a)	$\frac{70}{100}$	M1	for 100 – 30 (= 70) or $\frac{30}{100}$ oe	
			A1	for $\frac{70}{100}$ oe	Accept any equivalent fraction, decimal form 0.7 or percentage form 70%
	(b)	45	P1	for start to process, eg 30 ÷ 2 (= 15)	
			A1	cao	
	(c)	No with reason	C1	for No with reason **or** ft (b) **Acceptable examples** the number of red and yellow counters is an odd number 25 cannot be divided by 2 to give a whole number You can't have half a counter You can't split it evenly **Not acceptable examples** Yes ..... they are in the ratio 2 : 3 one must be more than the other	If the reason is supported by numerical evidence then that evidence must be accurate. can ft (b) Note: if the answer to part (b) is an even number then 'yes' with supporting evidence is an acceptable answer

10	(a)(i)	2 : 6 : 5	P1	for process to compare ratios, eg $a : b = 2 : 6$ or $b : c = 3 : 2.5$	Could use 3 or any common multiple of 3 and 6
			A1	for 2 : 6 : 5 oe	
	(ii)	$\frac{2}{13}$	M1	for process to find fraction, eg $\frac{[2]}{[2+6+5]}$ or for $\frac{a}{a+b+c}$	
			A1	for $\frac{2}{13}$ oe or ft (a)(i)	
	(b)	1 : 10	P1	for process to express all numbers in terms of one number, eg $p = 5 \times 2m$ (= $10m$) or $m = \frac{n}{2}$ **or** for $2m = \frac{p}{5}$ **or** for assigning values in the ratio given, eg $m = 1$, $n = 2$, $p = 10$ **or** for $n : m : p = 2 : 1 : 10$ oe **or** 10 : 1 oe	
			A1	for 1 : 10 oe	

11	1 : 6 : 3	M1	for any two algebraic statements from x, $6x$, $6x/2$ oe **or** any two numbers as a correct ratio eg 1 : 6 or 6 : 3 or 1 : 3 oe **or** any 3-term ratio using the numbers 1, 6 and 3	
		A1	oe	For any equivalent ratio.

12	Description	C1	Identifies a mistake in the working **Acceptable examples** Rob should divide by 8 He should have added the 3 and 5 first He divided 120 by 3 and 5 instead of 8 He did not do it as $120 \times \frac{3}{8}$ and $120 \times \frac{5}{8}$ He did not add the two ratios first **Not acceptable examples** He has done it in two parts but he should do it in one The answer should be 45 : 75 They do not add up to 120 He is supposed to add his numbers 40 + 24 does not equal 120	

13	(b)	4 : 9	M1 A1	for 8 : 18 or for any ratio equivalent to 4 : 9 **or** 9 : 4 or 2.25 : 1 for 4 : 9	 Accept 4 : 9 in the form 1 : *n*, eg 1 : 2.25

14	No with reason	C1	for No and valid reason, eg compares $\frac{1}{3}$ with $\frac{1}{2}$ or 16 (with 24) **Acceptable examples** No, $\frac{1}{3}$ are red not $\frac{1}{2}$ There are 16 red counters (not 24) No as she has used the ratio 1:1 (not 1:2) Incorrect as it is 16 : 32 No as she should divide by 3 (as 1 + 2 = 3) No as they would both be 24 so it doesn't fit in the ratio 1 : 2 No because 24 + 48 = 72 **Not acceptable examples** Yes, … No as the number of red counters would be lower There is 1 red for every 2 blue	

15	168	P1 P1 A1	for a start to the process, eg $\frac{57}{100} \times 800$ (= 456) or 57 ÷ (12 + 7) (= 3) **or** 800 ÷ (12 + 7) (= 42.1...) **or** [amount] $\times \frac{57}{100}$ or [amount] $\times \frac{7}{12+7}$ for a complete process to find the weight of glass, eg $\frac{57}{100} \times 800 \times \frac{7}{12+7}$ oe for an answer in the range 167.9 to 168 SCB2 for an answer of 288	May be seen as part of other calculations, eg $\frac{7}{12+7} \times 57$ (= 21) or $\frac{7}{12+7} \times 800$ (= 294.7...) [amount] can be any figure considered as being 57% of 800 or 43% calculated incorrectly or a figure calculated from using full or partial ratio incorrectly as a first step