

1	Alternative method 1		
	5 : 1 or 1 : 5 or $\frac{5}{6}$ or $\frac{1}{6}$ or 6 (parts)	M1	may be implied by second mark may be seen on diagram
	$180 \div 6$ or 30	M1dep	
	150	A1	
	Alternative method 2		
	$5x + x = 180$ or $6x = 180$	M1	any letter may be implied by second mark
	$180 \div 6$ or 30	M1dep	
	150	A1	
	Additional Guidance		
	If Trial and Improvement used, 30 seen is M2 but 150 must be chosen as the answer for M2A1		
	$360 \div 6$		M1M0A0

2(a)	Valid reason	B1	eg there might be 20 sheep or the number of sheep could be any multiple of 10 or the ratio may have been simplified or the numbers in the ratio do not have to be the actual numbers
	Additional Guidance		
	Ignore irrelevant statements but do not ignore contradictory statements		
	It doesn't mean 10 sheep it's just their ratio	B1	
	The total number of animals is unknown	B1	
	Could be 50 sheep	B1	
	Could be 20 : 6	B1	
	There are 10 sheep for every 3 cows we just don't know the exact number (of sheep/cows or total)	B1	
	Could be 50 sheep and 18 cows (error seen)	B0	
	Could be $50 : 15 = 10 : 3 = 2 : 1$ (error seen)	B0	
	It's only a ratio	B0	
	There are 10 sheep for every 3 cows	B0	
	There could be more than 10 sheep and more than 3 cows	B0	
	There might be more than 10 sheep / might be more than 3 cows	B0	

2(b)	Yes and valid working	B1	eg Yes and $(4 \times 3 =) 12$ oe or Yes and 4×3 is less than 13 oe or Yes and $(13 \div 4 =) 3.25$ oe or Yes and $13 \div 4$ is more than 3 oe or Yes and $(13 \div 3 =) 4.3...$ oe or Yes and $13 \div 3$ is more than 4 oe
	Additional Guidance		
	'No' or 'Cannot tell' ticked		B0
	Ignore irrelevant statements but do not ignore contradictory statements		
	Allow correct reference to remainders or shortfalls in working eg Yes and $13 \div 4 = 3$ with one (goat) left over		B1
	eg Yes and $13 \div 4 = 3$ r1		B1
	eg Yes and $13 \div 4 = 3.1$		B0
	Any evaluation must be fully correct or reference a remainder or shortfall eg Yes and $13 \div 4 = 3.2$		B0
	Any comparative statement must be true eg Yes and $13 \div 4$ is less than 3		B0

3	$90 \div 5$ or 18	M1	
	$2 \times$ their 18 or 36	M1dep	M2 $\frac{2}{5} \times 90$
	$180 - 90 -$ their 36	M1dep	oe eg $90 -$ their 36
	90 36 54	A1	any order
	Additional Guidance		
	Beware of incorrect methods, eg dividing 180 by 5 $180 \div 5 = 36$ $180 \div 2 = 90$ $180 - 90 - 36 = 54$ Answer 90, 36, 54		MOMOMOAO
	Beware of 18 coming from wrong working $90 \div 2 = 45$ $90 \div 5 = 18$ $90 \div 7 = \dots$ However, it is not incorrect to work with $180 \div 10$		MOMOMOAO
	Trial and Improvement scores 0 or 4		

4	20	B3	B2 (A : B : C =) 12 : 6 : 2 or (A : B =) 12 : 6 and (B : C =) 6 : 2 or A = 12 and C = 2 B1 (A : B : C =) 6 : 3 : 1 oe or (A : B =) 12 : 6 or (B : C =) 6 : 2 or A = 12 or C = 2
	Additional Guidance		
	Allow clear indication that A is 12 or C is 2		
	6 : 3 : 1 must be a single ratio for B1		
	$m : 6 : 2$		B1
	$12 : 6 : n$		B1

5	$a = 7b$	B1	
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6	8	B1	
	$\frac{1}{0.4}$ or $\frac{10}{4}$ or 2.5 or $\frac{1}{\frac{2}{5}}$ or $\frac{5}{2}$ or $2\frac{1}{2}$	M1	8×0.4 or 3.2 implies B1M1 $16 : 5$ or equivalent ratio implies B1M1
	$3.2 : 1$ or $\frac{16}{5} : 1$ or $3\frac{1}{5} : 1$	A1ft	ft B0M1
	Additional Guidance		
	$8^3 = 512$ or $8 \times 8 \times 8 = 512$ alone is not sufficient for B1		
	ft answers must have n exact or correctly rounded to at least 2 sf eg $\sqrt{512} = 22.62$ (incorrect and truncated) 2.5 $9.05 : 1$		B0 M1 A1ft
	ft answer exact surd value eg $\sqrt{512} = 16\sqrt{2}$ 2.5 $9.05 : 1$ or $\frac{32}{5}\sqrt{2} : 1$		B0 M1 A1ft

Q	Answer	Mark	Comments
7	$1 : 3 : 2$	B2	B1 $5 : 15 : 10$ oe ratio not in its simplest form or their 3-term ratio written in its simplest form
	Additional Guidance		
	$5 : 15 : 30$ simplified to $1 : 3 : 6$		B1
	$5 \ 15 \ 30$ simplified to $1 : 3 : 6$		B0

Question	Answer	Mark	Comments
8	$62 \div 2$ or 62×0.5 or 31	M1	oe eg $62 \div 60 \times 30$
	their $31 - 25$ or 6	M1	their 31 must be > 25
	their 6×3 or 18 or their 6×4 or 24	M1dep	dep on 2nd M1
	49	A1	
	Additional Guidance		
	49 from correct working, but a different answer given		M3A0

Q	Answer	Mark	Comments
9	$\frac{3}{8}$	B1	

Q	Answer	Mark	Comments
10	7.35×4 or 29.4(0)	M1	oe
	$7.35 \div 3$ or [2.42, 2.45]	M1	oe implied by 14.54 allow 0.33 or better
	their $29.4(0) - (16.99 - \text{their } 2.45)$	M1dep	oe dep on M1M1
	14.86	A1	
	Additional Guidance		
	Up to M2 may be awarded for correct work, with no or incorrect answer, even if this is seen amongst multiple attempts		
	The first two marks may be seen in either order		
	Do not allow use of 0.3		

Q	Answer	Mark	Comments
11	$270 \div (2.6 + 1)$ or $270 \div 3.6$ or 75 or $\frac{2.6}{(2.6+1)}$ or $\frac{2.6}{3.6}$ or 0.72(...) or $2.6 - 1$ or 1.6	M1	oe
	their 75×2.6 or $270 - \text{their } 75$ or 195 or $270 \times \text{their } 0.72(\dots)$ or their $75 \times (2.6 - 1)$ or their $75 \times \text{their } 1.6$ or $\frac{\text{their } 1.6}{(2.6+1)}$ or 0.44(...)	M1dep	oe
	120	A1	
	Additional Guidance		
	195 and 75		M1M1
	$270 \div 2.6$		M0

Q	Answer	Mark	Comments
12	Alternative method 1: using different time periods		
	450 ÷ 30 or 15 or 250 ÷ 10 or 25	M1	oe for any section of the basic rate or the overtime rate eg $\frac{450-150}{30-10}$
	15 and 25	A1	implied by any ratio equivalent to 3 : 5 do not allow as a ratio in the wrong order eg 25 : 15
	3 : 5 or $\frac{3}{5} : 1$ or $1 : \frac{5}{3}$	B1ft	oe fully simplified ft full simplification of their two values
	Alternative method 2: using equal time periods		
	Four correct readings from equal time periods of at least 5 hours from the two sections of the graph	M1	eg at 5 and 10 hours and at 35 and 40 hours if a reading from 30 is used, there may only be 3 readings a reading of 0 from 0 may be implied
	15 and 25 or correct totals for their equal time periods	A1	eg 10 hours = 150 and 10 hours = 250 implied by any ratio equivalent to 3 : 5 must not be seen as a ratio in the wrong order eg 250 : 150
	3 : 5 or $\frac{3}{5} : 1$ or $1 : \frac{5}{3}$	B1ft	oe fully simplified ft full simplification of their two values

12 cont	Additional Guidance	
	In alt 2, only three readings are needed if a reading from 30 hours is included in both time periods or a reading of 0 is used eg readings of 300 from 20, 450 from 30 and 700 from 40	M1
	Readings from 10, 20, 30 and 40 should be 150, 300, 450 and 700 For readings from other numbers of hours not giving a multiple of £10 allow the multiple of 10 above or below the reading or any value between, which can then be used to score all three marks eg allow [220, 230] for a reading at 15 hours eg alt 1 readings of 70 at 5 hours, 380 at 25 hours, 450 at 30 hours and 700 at 40 hours, followed by hourly rates of 15.50 and 25 and an answer of 31 : 50 eg alt 2 readings of 370 at 25 hours, 450 at 30 hours, 580 at 35 hours and 700 at 40 hours, followed by totals of 80 and 120 or hourly rates of 16 and 24 and an answer of 2 : 3	M1A1B1ft M1A1B1ft
	For $1\frac{2}{3}$ allow 1.67 or better with correct rounding	
	450 : 250 = 45 : 25 does not get the mark for 25, but gets the final mark if simplified to 9 : 5	
	Ignore units throughout eg answer £3 : £5	M1A1B1
	15 : 25	M1A1B0
	25 : 15 or 25 : 10 not simplified	M1A0B0
	25 : 15 with answer 5 : 3 or 25 : 10 with answer 5 : 2	M1A0B1ft
	Answer 5 : 3 without working implies	M1A0B1ft
	15 : 17.5	M1A0B0
	15 : 17.5 followed by 6 : 7	M1A0B1ft
	20 : 25	M1A0B0
	20 : 25 followed by 4 : 5	M1A0B1ft
	3 : 5 in working with answer 1.5 : 2.5	M1A1B0
	30 : 10 = 3 : 1	M0A0B1ft

Q	Answer	Mark	Comments
13	$\frac{18}{5}$	B1	

Q	Answer	Mark	Comments
14(a)	$\frac{9}{9+11}$ or $\frac{9}{20}$ or 0.45 or $100 \div 20 \times 9$ or 5×9 or 45 : 55	M1	oe eg $9 \div 20$
	45	A1	SC1 55
	Additional Guidance		
	Allow eg $\frac{9}{20}$ seen with further incorrect work eg $\frac{9}{20} \times 11$		M1A0
	9 out of 20 with no other creditworthy work		M0
	Build-up method must be a fully correct method		

Q	Answer	Mark	Comments
14(b)	$\frac{100-68}{2}$ or $\frac{32}{2}$ or 16(%) or $\frac{1-0.68}{2}$ or $\frac{0.32}{2}$ or 0.16	M1	oe
	68 : 16 or $\frac{68}{16}$ or $68 \div 16$ or 4.25	A1	oe ratio not in form $n : 1$ eg 68% : 16% or 17 : 4 or 0.68 : 0.16 oe fraction or division or decimal implied by 4.25 : 1 oe
	4.25 : 1 or $4\frac{1}{4} : 1$	B1ft	oe ratio in form $n : 1$ eg $\frac{68}{16} : 1$ ft any ratio not in form $n : 1$ ft values must give n to 2 dp or better
	Additional Guidance		
	$\frac{100-68}{2} = 66$ 68 : 66 = 1.03 : 1	M1 A0B1ft	
	68 : 32 = 2.125 : 1 or 68 : 32 = 2.13 : 1	M0A0B1ft	
	68 $\div$ 32, Answer 2.125 : 1 (no ratio seen to ft)	M0A0B0ft	
	Correct ratio with subsequent truncation or rounding to < 2 dp eg1 4.25 : 1, Answer 4 : 1 eg2 68 : 32 = 2.125 : 1, Answer 2.1 : 1	M1A1B0 M0A0B0	
	4.25 n : 1	M1A1B0	
	16 : 1 with no other creditworthy work	M1A0B0	

Q	Answer	Mark	Comments
15	True Cannot tell	B2	B1 one correct
	Additional Guidance		
	A tick and a cross in the same row – mark the tick		
	Allow any unambiguous indication		

Q	Answer	Mark	Comments
16(a)	Straight line from (0, 0) to (10, 35)	B2	$\pm \frac{1}{2}$ square
			B1 one correct point $\pm \frac{1}{2}$ square from (2, 7) to (10, 35) seen or plotted or one correct ratio apart from 2 : 7 or one correct pair of amounts apart from 2 juice 7 water
	Additional Guidance		
	Mark intention		
	If no points plotted, a correct point from (2, 7) to (10, 35) can be implied by a straight line with positive gradient		
	Two points plotted with the same x -coordinate is choice unless the line is drawn through one of the points		
	Condone straight line from (2, 7) to (10, 35)		B2
	(2, 7) seen with graph not drawn or incorrect		B1
	10 : 35 seen with graph not drawn or incorrect		B1
6 juice 21 water with graph not drawn or incorrect		B1	

Q	Answer	Mark	Comments
16(b)	Alternative method 1 – uses the given ratio		
	17.5	B1	
	Alternative method 2 – uses their graph		
	Correct water reading for 5 litres of juice from their straight line	B1ft	$\pm \frac{1}{2}$ square
	Additional Guidance		
	17 or 18 from a correct straight line		B1

Q	Answer	Mark	Comments
17	$330 \div (3 + 2)$ or $330 \div 5$ or 66	M1	oe eg $\frac{330}{5}$
	their 66×2 or 132	M1dep	oe $\frac{2}{5} \times 330$ scores M2
	$294 \div 7$ or 42 or $294 \div 7 \times 3$ or 126	M1	oe eg $\frac{294}{7}$ or $\frac{3}{7} \times 294$
	132 and 126 and A	A1	
	Additional Guidance		
	132 and 88.2 and A		M1M1M0A0

Q	Answer	Mark	Comments
	Alternative method 1 – using the given scale		
18	(O) $20 \div 5$ or (A) $8 \div 2$ or 4 or (O) $5 \div 20$ or (A) $2 \div 8$ or $\frac{1}{4}$	M1	oe
	their 4×3 or $3 \div$ their $\frac{1}{4}$ or their $4 \times$ their $(5 + 3 + 2) - 20 - 8$ or 12	M1dep	20 – 8 implies M2 may be on diagram
	Correct width bar, in the correct position, drawn to height of 12	A1	mark intention, ignore any shading
	Alternative method 2 – using squares		
	(O) $10 \div 5$ or (A) $4 \div 2$ or 2 (squares)	M1	
	their 2×3 or 6 (squares)	M1dep	10 – 4 implies M2 may be on diagram
	Correct width bar, in the correct position, drawn to height of 12	A1	mark intention, ignore any shading
	Additional Guidance		
	$(20 + 8) \div (5 + 2)$		M1
	$(10 + 4) \div (5 + 2)$		M1

Q	Answer	Mark	Comments
19	$\frac{5}{6} \times 96$ or 80	M1	oe eg $96 \div 6 \times 5$ implied by 176
	$\frac{1}{4} \times$ their 80 or 20	M1dep	oe eg $80 \div 4$
	$\frac{2}{3} \times 96$ or 64	M1	oe eg $96 \div 3 \times 2$ accept 0.66 or better for $\frac{2}{3}$
	84(.00)	A1	SC2 100.8(0) or [77.32, 77.34] condone incorrect money notation eg 84.0 or 84.00p
	Additional Guidance		
	SC2 for 100.8(0) is from misreading as Andrew gets £96		
	SC2 for [77.32, 77.34] is from $\frac{2}{3}$ of 80 plus $\frac{1}{4}$ of 96		
	Do not accept ' $\frac{5}{6}$ of 96' or ' $\frac{1}{4}$ of 80' or ' $\frac{2}{3}$ of 96' for M marks unless accompanied by a correct method or value		

Q	Answer	Mark	Comments
20(a)	$\frac{4}{7}$	B1	oe fraction
	Additional Guidance		
	Conversion to decimal or percentage		B0

Q	Answer	Mark	Comments
21	Ticks Both of them and gives valid reason for Kai eg references both values being divided (or multiplied) by 3 and gives valid reason for Jo eg references both values being divided (or multiplied) by 6	B2	oe valid reason eg1 $9 \div 3 \times 2 = 6$ and $9 \div 1.5 \times 1 = 6$ or eg2 $9 \div 6 = 1.5$ and $3 \div 2 = 1.5$ and $1.5 \div 1 = 1.5$ B1 ticks Kai only and gives valid reason for Kai or ticks Jo only and gives valid reason for Jo or ticks Both of them and gives valid reason for Jo or Kai
	Additional Guidance		
	Ticks Both of them and gives correct reason for Kai or Jo and refs both values being divided (or multiplied) by 2 (to link Jo and Kai)	B2	
	Accept a build-up method to imply multiplying by 3 or by 6 eg all three of $3 : 2$ and $6 : 4$ and $9 : 6$ or all six of $1.5 : 1$ and $3 : 2$ and $4.5 : 3$ and $6 : 4$ and $7.5 : 5$ and $9 : 6$		
	Condone eg $3 : 2 \times 3 = 9 : 6$ to imply both values are multiplied by 3		
	If evaluating $6 \div 9 = 0.66$ and $2 \div 3 = 0.66$ and $1 \div 1.5 = 0.66$, accept 0.66(...) or 0.67		
	3 is a factor of 9 and 2 is a factor of 6 (with no reference to $\times 3$)	B0	
	$9 : 6 = 3 : 2$ or $\frac{9}{6} = \frac{3}{2}$ (not evaluated to 1.5 or shown $\div 3$)	B0	
	$9 : 6$ simplifies to $3 : 2$ and $1.5 : 1$ (with no reference to $\div 3$ or $\div 6$)	B0	
	$3 : 2$ and $1.5 : 1$ are both equivalent to $9 : 6$ (with no reference to $\times 3$ or $\times 6$)	B0	

Q	Answer	Mark	Comments	
22	45×8 or 360	M1	oe number of 2p coins may be embedded	
	$45 \times 8 \times 2$ or 360×2 or 720 or 7.2(0)	M1dep	oe value of 2p coins implied by 1170 or 11.7(0)	
	$17.7(0) - \text{their } 7.2(0) - 45 \times 0.1(0)$ or $1770 - \text{their } 720 - 45 \times 10$ or 6(.00) or 600	M1dep	oe value of 5p coins implied by 7.2 : 6 oe ratio not in simplest form or 6 : 7.2 oe ratio	
	6 : 5	A1	accept 1.2 : 1 or $\frac{6}{5} : 1$ or $1\frac{1}{5} : 1$ or 1 : 0.83(...) or $1 : \frac{5}{6}$	
	Additional Guidance			
	Up to M3 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts			
	Allow working in pence or pounds throughout			
	Must work consistently in pence or pounds for the third mark (or recover)			
	Ignore units in the ratio eg 6p : 5p or £1.20 : £1		M3A1	
	720 may be seen in a ratio with the value of the 10p coins eg 720 : 450 or 7.2 : 4.5		M2	
	600 may be seen in a ratio with the value of the 10p coins eg 600 : 450 or 6 : 4.5		M3	
	For information:			
	Coin	10p	2p	5p
	Number	45	360	120
	Value	£4.50	£7.20	£6.00

Q	Answer	Mark	Comments
23	$360 \div 9 (= 40)$ and $40 \times 7 = 280$ or $360 \div 9 (= 40)$ and $40 \times 2 (= 80)$ and $80 + 280 = 360$ or $40 \times 2 (= 80)$ and $40 \times 7 (= 280)$ and $80 + 280 = 360$ or $280 \div 7 (= 40)$ and $40 \times 9 = 360$ or $2:7 = 80:280$ and $80 + 280 = 360$ or $360 - 280 (= 80)$ and $80:280 = 2:7$	B2	oe B1 $360 \div 9$ or $280 \div 7$ or 40 oe or $\frac{2}{9}$ or $\frac{7}{9}$ or $360 - 280$ or 80 oe
	Additional Guidance		
	80 and 280 shown on the diagram is not oe for $80 + 280 = 360$		
	$360 \div 9 \times 7 = 280$		B2
	$360 \div 9$ and 40×2 and $2:7 = 80:280$		B2
	$360 \div 9 = 40$ and $2:7 = 80:280$ (40×2 or 40×7 missing)		B1
	$40 \times 7 = 280$ without $360 \div 9$ eg $40 \times 7 = 280$ and $80 + 280 = 360$ ($360 \div 9 = 40$ or 40×2 missing)		B1
	$80:280$ and $80 + 280 = 360$ ($2:7 = 80:280$ missing)		B1
	$360 \div 9 = 40$ and $80 + 280 = 360$ (40×2 or 40×7 missing)		B1
	$280 \div 7 = 40$ and $360 - 280 = 80$ (40×2 or 40×9 missing)		B1
	$280 \div 7$ and 40×2 and $80:280 = 2:7$ ($80 + 280 = 360$ missing)		B1
	$80 + 280 = 360$		B1

Q	Answer	Mark	Comments
24	Alternative method 1		
	2450 $\div$ (2 + 5) or 2450 $\div$ 7 or 350	M1	oe
	their 350 $\times$ 5 or 1750 or their 350 $\times$ 2 or 700 or their 350 $\div$ 4 or 87.5(0)	M1dep	oe $2450 \times \frac{5}{7}$ is M2 $2450 \times \frac{2}{7}$ is M2 $2450 \div 28$ is M2
	their 1750 $\div$ 4 or (2450 – their 700) $\div$ 4 or their 87.5(0) $\times$ 5 or 437.5(0)	M1dep	oe dep on M2 $350 \times \frac{5}{4}$ is M3
	437.5(0) and Yes	A1	accept 437.5(0) > 430
	Alternative method 2		
	2450 $\div$ 4 or 612.5(0)	M1	oe
	their 612.5(0) $\div$ (2 + 5) or their 612.5(0) $\div$ 7 or 87.5(0)	M1dep	oe $2450 \div 28$ is M2
	their 87.5(0) $\times$ 5 or their 612.5(0) – their 87.5(0) $\times$ 2 or 437.5(0)	M1dep	oe dep on M2 $612.5(0) \times \frac{5}{7}$ is M3
	437.5(0) and Yes	A1	accept 437.5(0) > 430

24 cont	Alternative method 3		
	430×4 or 1720	M1	
	$2450 \div (2 + 5)$ or $2450 \div 7$ or 350	M1	oe
	their 350×5 or 1750 or their 350×2 or 700	M1dep	oe dep on 2nd M $2450 \times \frac{5}{7}$ is M2 $2450 \times \frac{2}{7}$ is M2
	1720 and 1750 and Yes	A1	$2450 - 1720 = 730$ and 700 and Yes
	Alternative method 4		
	430×4 or 1720	M1	
	their $1720 \div 5$ or 344 or their 1720×2 or 3440	M1dep	oe
	their 344×2 or their $3440 \div 5$ or 688	M1dep	oe dep on M2 $1720 \times \frac{2}{5}$ is M3
	2408 and Yes	A1	
	Additional Guidance		
	Up to M3 may be awarded for correct work, with no answer or incorrect answer, even if this is seen amongst multiple attempts		
	$2450 \div 7 \times 1.25$ or 350×1.25		M1M1M1
	Yes may be implied eg They receive 7.50 more than 430		M3A1
	Condone £437.50p and Yes		M3A1

Q	Answer	Mark	Comments
25(a)	Alternative method 1		
	$\frac{200 - 60}{2}$ or $\frac{140}{2}$ or 70	M1	oe eg $\frac{200}{2} - \frac{60}{2}$ may be seen or implied in a ratio eg $n : 70$ or $70 : n$
	130 : 70	A1	must be in correct order
	13 : 7	B1ft	ft a correct and full simplification of any unsimplified ratio condone $\frac{13}{7} : 1$ or $1 : \frac{7}{13}$ SC2 7 : 13
	Alternative method 2		
	$\frac{200 + 60}{2}$ or $\frac{260}{2}$ or 130	M1	oe eg $\frac{200}{2} + \frac{60}{2}$ may be seen or implied in a ratio eg $130 : n$ or $n : 130$
	130 : 70	A1	must be in correct order
	13 : 7	B1ft	ft a correct and full simplification of any unsimplified ratio condone $\frac{13}{7} : 1$ or $1 : \frac{7}{13}$ SC2 7 : 13

25(b) cont	Alternative method 3		
	200 + 60 and 200 – 60 or 260 and 140	M1	
	260 : 140	A1	must be in correct order
	13 : 7	B1ft	ft a correct and full simplification of any unsimplified ratio condone $\frac{13}{7} : 1$ or $1 : \frac{7}{13}$ SC2 7 : 13
	Additional Guidance		
	70 : 130 with answer 7 : 13	M1A0B1ft	
	Accept 0.53(846...) or 0.54 for $\frac{7}{13}$ or 1.85(714...) or 1.86 for $\frac{13}{7}$		
	For the M1 in Alt1, 70 must come from working towards a ratio of 130 : 70 or 70 : 130, not from a simplification of 140 : 60 200 – 60 = 140, 140 : 60, 70 : 30 200 – 60 = 140, 140 : 60, 70 : 30, 7 : 3	M0A0B0ft M0A0B1ft	
	Ignore any units given in the answer		
	Algebraic approach may be seen but no marks scored until $x = \frac{200 - 60}{2}$ reached oe		
	For any ratio, condone correct simplification to 1 : n or n : 1	B1ft	

Q	Answer	Mark	Comments
26	$3 + 7$ or 10	M1	implied by 10 symbols or 6.2
	$62 \div \text{their } 10 \times 3$ or 6.2×3 or 18.6 or $62 \div \text{their } 10 \times 7$ or 6.2×7 or 43.4	M1dep	oe full method to work out either number
	18.6 or $\frac{93}{5}$ or $18\frac{3}{5}$ and 43.4 or $\frac{217}{5}$ or $43\frac{2}{5}$	A1	oe decimals, fractions or mixed numbers either order
	Additional Guidance		
	18.6 and 43.4 in working, but truncated or rounded to 18 or 19 and 43 on the answer line		M1M1A1
	$62 = 10x$		M1
	$\frac{x}{62} = \frac{3}{10}$ or $\frac{y}{62} = \frac{7}{10}$		M1

Q	Answer	Mark	Comments
27	$3^{11} (: 3^7)$ or $3^6 : 3^2$ or $3^5 : 3^{(1)}$ or $\frac{a}{3^7}$ or 177 147 : 2187	M1	oe eg 729 : 9 or 243 : 3 3^n may be implied by a multiplication string of n 3s a can be any value other than 3^7
	$\frac{3^{11}}{3^7} (: 1)$ or $\frac{3^6}{3^2} (: 1)$ or $3^6 \times 3^{-2} (: 1)$ or $\frac{3^5}{3^{(1)}} (: 1)$ or $3^{-1} \times 3^5 (: 1)$ or $3^4 (: 1)$ or $\frac{177\,147}{2187} (: 1)$	M1dep	oe left-hand side with one or two components eg $\frac{729}{9} : 1$ or $243 \times \frac{1}{3} : 1$ allow $(: 1)$ to be $(: 3^0)$ 3^n may be implied by a multiplication string of n 3s
	81 : 1	A1	
	Additional Guidance		
	$\frac{3^6 \times 3^5}{3^7} (: 1)$ with no further work		M1M0A0
	81 : 1 or $3^4 (: 1)$ could be seen from incorrect working eg $\frac{9^{11}}{3^7} = 3^4$ Answer 81 : 1		M1M0A0
Q	Answer	Mark	Comments
28	11 : 10	B1	

Q	Answer	Mark	Comments
29	Alternative method 1		
	Pair of integers in the ratio 5 : 4 between 20 : 16 and 75 : 60 or list of multiples of 9 with at least 3 correct including 63 or $63 \div 9 = 7$ or $63 \div 7 = 9$ or $9 \times 7 = 63$	M1	20 and 16 or 25 and 20 or 30 and 24 or 35 and 28 or 40 and 32 or 45 and 36 or 50 and 40 or 55 and 44 or 60 and 48 or 65 and 52 or 70 and 56 or 75 and 60
	63	A1	
	Alternative method 2		
	An integer [60, 70] divided in the ratio 5 : 4 eg $65 \div 9 \times 5$ and $65 \div 9 \times 4$	M1	if no method seen, values must be rounded or truncated to at least 1 dp eg 65 and 36.1 and 28.8 or 28.9
	63	A1	
	Additional Guidance		
	Up to M1 may be awarded for correct work with no answer, or incorrect answer, even if this is seen amongst multiple attempts		
	M1 pairs of responses may be seen in a ratio		
	Answer 35 : 28		M1A0
	63 seen in list of multiples eg 27, 36, 45, 54, 63, ... but not selected as the answer		M1A0
	63 from incorrect method with no M1 response seen		M0A0
	Alt 2 eg $65 \div 9 = 7.2$ with 36 and 28.8 implies multiplication by 5 and 4 (because it follows through from their answer to the correct division)		M1A0
	Alt 2 eg $65 \div 9 = 7.2$ with 36.1 and 28.8 or 28.9 implies multiplication by 5 and 4 (may have kept full value on calculator)		M1A0
	Alt 2 eg 65 and no working with 36 and 28.8 does not imply the method (because these are not rounded or truncated to at least 1 dp)		M0A0

Q	Answer	Mark	Comments
30	Alternative method 1		
	$72 \div 6 \times 5$ or 60	M1	oe $72 \div 6 \times 11$ or 132 implies M1
	72×1.5 or 108	M1	oe eg $72 \times 3 \div 2$ 14×12 implies M2
	60 and 108 and 240 or $250 - 60 - 108 = 82$	A1	oe eg1 168 and 240 eg2 60 and 108 and 10 eg3 168 and $(250 - 72 =)$ 178
	Alternative method 2		
	6×1.5 or 9	M1	oe eg1 $6 \times 3 \div 2$ eg2 $6 : 5 : 9$
	$72 \div 6 \times (6 + 5 + \text{their } 9)$ or $72 \div 6 \times 5$ and $72 \div 6 \times \text{their } 9$	M1dep	oe eg 12×20 14×12 implies M2
	9 and 240 or 60 and 108 and 240 or $250 - 60 - 108 = 82$	A1	oe eg1 168 and 240 eg2 60 and 108 and 10 eg3 168 and $(250 - 72 =)$ 178
	Additional Guidance		
	Up to M2 may be awarded for correct work, with no or incorrect answer, even if this is seen amongst multiple attempts		
	In Alt 1 the 2nd mark is not dependent In Alt 2 the 2nd mark is dependent		
	240 alone or 240 with no correct method		M0
	$72 \div 6 \times 11 = 132$ and $132 + 108 = 240$		M1M1A1
	$1\frac{1}{2} \times 72 = 36$ and $72 + 36 = 108$ and $72 + 60 + 108 = 240$		M1M1A1
	$1\frac{1}{2} \times 72 = 36$		M1
	$1\frac{1}{2}$ of 72 = 36		M0
	$72 \div 11$		M0

Q	Answer	Mark	Comments
31	Alternative method 1		
	$0.49 \times (250 + 50)$ or 0.49×300 or 147	M1	oe
	their 147 – 128 or 19	M1dep	
	19 : 31	A1	SC2 answer 31 : 19
	Alternative method 2		
	$(1 - 0.49) \times (250 + 50)$ or 0.51×300 or 153	M1	oe
	their 153 – 122 or 31	M1dep	
	19 : 31	A1	SC2 answer 31 : 19
	Additional Guidance		
	Up to M2 may be awarded for correct work, with no or incorrect answer, even if this is seen amongst multiple attempts		
	147 : 153 or 153 : 147		M1M0A0
	0.49 : 0.51		M0M0A0
	Beware of 147 and 153 from incorrect working $122 + 25 = 147$ $128 + 25 = 153$		M0 M0

Q	Answer	Mark	Comments
32(a)	$240 \div (1 + 3)$ or $240 \div 4$ or 60	M1	oe
	180	A1	
	Additional Guidance		
	$240 \div 4$ and $240 \div 3$ is choice unless the answer comes from $240 \div 4$		
	60 : 180 or 180 : 60 with no answer chosen		M1A0
Q	Answer	Mark	Comments
32(b)	$\frac{5}{14}$	B1	oe fraction
	Additional Guidance		
	5 : 14		B0

Q	Answer	Mark	Comments
33	0.4 or 0.8 or 220 or 700	M1	oe
	$2.2 + 2 \times 0.4 + 7$ or 10 or 1000	M1	oe allow mixed units 10 or 1000 implies M2
	$\frac{7}{10}$ or $\frac{700}{1000}$	A1	oe fraction SC2 0.7(0) or 70%
	Additional Guidance		
	Ignore simplification attempts after a correct fraction is seen		
	$\frac{7}{10}$ in working with 0.7 on answer line		M1M1A0
	Condone eg 0.80p for first M1		
	Do not allow eg £220 for first M1		

Q	Answer	Mark	Comments
34(a)	12 : 18	B1	oe eg 6 : 9 may be implied by correct answer
	2 : 3 or 1 : 1.5 or $1 : \frac{3}{2}$ or $\frac{2}{3} : 1$	B1ft	ft their ratio
	Additional Guidance		
	Accept [0.66, 0.67] for $\frac{2}{3}$		
	2 : 3		B1B1
	Answer 1 : $\frac{6}{4}$		B1B0
	12 : 30 followed by 2 : 5		B0B1ft

Q	Answer	Mark	Comments
34(b)	$\frac{3}{11}$	B1	oe fraction

Q	Answer	Mark	Comments
34(c)	2.25 or $2\frac{1}{4}$ or $\frac{9}{4}$	B1	oe
	Additional Guidance		
	Condone eg 1 : 2.25		B1