1(a)	11	B1	
	Additional Guidance		
	Must be seen in this part		
1(b)	3 4 4 5 9 10 12 14 or 14 12 10 9 5 4 4 3 or 3 4 4 5 9 or 14 12 10 9 5 or $\frac{5+9}{2}$ or 5 and 9 chosen	M1	allow one omission, extra or transcription error in a full list
	7	A1	
	Additional Guidance		
	Allow the ordered list to be seen by the given list or in part (a) even if part (b) is blank but not if the mean is calculated in part (b)		
	Correct ordering but calculates mean		M0A0
	Answer 7.6…		M0A0
	NB 3 + 4 = 7		M0A0
	Answer 7 from any or no list but not from 3 + 4		M1A1

2(a)	1	B1	
	Additional Guidance		
	1 and frequency 9		B1
	1 and 9 times		B1
	1 and 9 or 1, 9		B0
2(b)	(0 × 5 and) 1 × 9 and 2 × 8 and 3 × 6 and 4 × 2 or (0 and) 9 and 16 and 18 and 8 or 51	M1	allow one error
	(0 + 9 + 16 + 18 + 8) ÷ 30 or 51 ÷ 30 or their 51 ÷ 30	M1dep	without working their 51 must be the correct sum of their products
	1.7	A1	oe
	Additional Guidance		
	1.7 seen with 2 on answer line		M1M1A1
	(5 + 9 + 16 + 18 + 8) ÷ 30		M1M1
	Products 5 9 16 18 8 and 55 ÷ 30		M1M0
	51 ÷ 5		M1M0
	0 + 9 + 16 + 18 + 8 ÷ 30 unless recovered		M1M0
	Correct products seen with 30 ÷ 5 or 30 ÷ 10		M0

Q	Answer	Mark	Comments
3	Puts toffees in order or orders the numbers to at least the sixth number from either end 47, 49, 49, 50, 50, 51 or 57, 55, 55, 55, 54, 51 or gives median of toffees as 51	M1	allow one error or omission on an attempt at a full list
	Identifies 48 and 50 for mints or gives median of mints as 49	M1	eg circled in list or vertical line between 48 and 50
	51 for toffees and 49 for mints	A1	with no errors seen
	Yes for toffees and No for mints	A1ft	correct decision for their values with M1M1 awarded and a single median given for each
	Additional Guidance		
	Ignore modes or means if medians also given, but modes or means only scores zero		
	Beware of medians coming from only using the distinct values: 47, 49, 50, **51**, 54, 55, 57 46, 47, 48 I 50, 53, 54		M0
	For the A1ft, the median may be a decimal eg 47, 49, 49, 50, 50, 51, 51, 54, 55, 55, 57 median = 50.5 48 + 50 = 98, 98 ÷ 2 = 44 Yes for toffees, No for mints		M1M1A0A1ft

Q	Answer	Mark	Comments
4	$6 \times 10 - (12 + 7 + 15 + 3)$ or $60 - 37$ or 23	M1	implied by two numbers with a total of 23 eg -11 and 34
	Two positive numbers with a total of 23	A1	
	Two positive numbers which make the range of the list 19	B1	eg a and 22, where $3 \leqslant a \leqslant 22$
	Additional Guidance		
	2 and 21 is the only fully correct answer		M1A1B1
	11.5 and 11.5		M1A1B0
	1 and 22		M1A1B0
	0 and 23		M1A0B0

Q	Answer	Mark	Comments
5(a)	Five numbers with mode 8 and median 12	B2	B1 five numbers with mode 8 eg 2 5 8 8 8 or 8 10 19 4 8 or five numbers with median 12 eg -3 6 12 14 20 or 7 10 18 12 16
	Additional Guidance		
	8 8 12 16 25		B2
	8 8 8 8 8		B1
	12 12 12 12 12		B1
	Do not allow bimodal sets of numbers for mode 8 but median may still be 12 eg 8 8 12 12 13 eg 7 7 8 8 10		 B1 B0
	A set of four or more than five numbers may score B1 if the mode is 8 and the median is 12 eg 8 8 11 13 20 21 eg 8 8 16 17		 B1 B1

Q	Answer	Mark	Comments
5(b)	159	B1	
	Additional Guidance		
	Mark answer line but if blank allow unambiguous selection in the list of heights		

Q	Answer	Mark	Comments
6	**Alternative method 1**		
	90×5 or 450 or $\frac{72+83+88+97+x}{5}$ or $\frac{340+x}{5}$	M1	oe any letter or symbol
	$90 \times 5 - 72 - 83 - 88 - 97$ or $90 \times 5 - 340$ or $72 + 83 + 88 + 97 + x = 90 \times 5$ or $340 + x = 90 \times 5$	M1dep	oe any letter or symbol equations must have fraction eliminated
	110	A1	
	Alternative method 2		
	Trial of any value with mean correctly evaluated	M1	also allow if given to the next or previous integer eg1 trial of 100 $\frac{72+83+88+97+100}{5} = 88$ eg2 trial of 78 $\frac{340+78}{5} = 83$ (or 84 or 83.6) ignore trials with mean not evaluated or incorrectly evaluated
	Trial of 110 with mean evaluated to 90	M1dep	eg $\frac{72+83+88+97+110}{5} = 90$ this mark implies M1M1
	110	A1	

6 cont	**Alternative method 3**		
	$\frac{72+83+88+97}{4}$ or $\frac{340}{4}$ or 85	M1	oe
	their 85 + 5 × (90 – their 85) or their 85 + 5 × 5 or their 85 + 25	M1dep	oe 90 + 4 × (90 – their 85)
	110	A1	
	Alternative method 4		
	$\frac{72+83+88+97}{5}$ or $\frac{340}{5}$ or 68	M1	oe
	5 × (90 – their 68) or 5 × 22	M1dep	oe
	110	A1	
	Alternative method 5		
	(90 – 72) + (90 – 83) + (90 – 88) + (90 – 97) or 18 + 7 + 2 – 7 or 20	M1	oe eg (72 – 90) + (83 – 90) + (88 – 90) + (97 – 90) or 90 × 4 – 72 – 83 – 88 – 97 or –18 – 7 – 2 + 7 or –20
	90 + their 20	M1dep	oe eg 90 – their –20
	110	A1	
	Additional Guidance		
	M1 may be awarded for correct work with no, or incorrect answer, even if this is seen amongst multiple attempts		
	Embedded 110 scores M1M1A0 using Alt 2 (even if a different answer is given)		
	Condone eg Alt 3 72 + 83 + 88 + 97 ÷ 4 No further marks unless recovered		M1
	Alt 5 1st M1 Subtractions must be consistent		
	Condone 110% for 110		

Q	Answer	Mark	Comments
7(a)	1×7 and 2×5 and 3×4 and 4×1 and 5×3 or 7 and 10 and 12 and 4 and 15 or 48	M1	oe allow one error or omission
	$(7 + 10 + 12 + 4 + 15) \div 20$ or $48 \div 20$ or their $48 \div 20$	M1dep	oe eg $\frac{48}{20}$ or $\frac{12}{5}$ or $2\frac{2}{5}$ without working their 48 must be the correct sum of their products
	2.4	A1	SC1 33.75

Additional Guidance

$48 \div 5$	M1M0
$1 \times 7 + 2 \times 5 + 3 \times 4 + 4 \times 1 + 5 \times 5$ (5×5 is one error) $58 \div 20 = 2.9$	M1 M1A0
$8 + 10 + 12 + 4 + 15$ (8 is one error) $49 \div 20 = 2.45$	M1 M1A0
Answer 2 after 2.4 seen	M1M1A0
$7 + 10 + 12 + 4 + 15 \div 20$ not recovered	M1M0
Correct products or values seen but a different method used is a choice of methods eg 7 10 12 4 15 followed by $20 \div 5$ or $20 \div 15$	M0

Q	Answer	Mark	Comments
	Valid statement about proportion	B1	eg there were more members than guests
	Valid statement about average	B1	eg the average number of hours was greater for the members
	Valid statement about spread	B1	eg the visiting times of the guests were more spread out
	Additional Guidance		
	Condone irrelevant statements with correct statements but do not award a correct statement with a contradictory statement		
	Accept non-members for guests		
	Proportion statements		
8	There were more members	B1	
	They were mostly members / More than half were members	B1	
	There were 28% more members than guests	B1	
	Fewer guests (than members)	B1	
	The members were 64%, the guests were (only) 36%	B1	
	The members were 64, the guests were (only) 36	B0	
	The difference is 28%	B0	
	There were 32% more members (calculation error)	B0	
	Members visit the gym more often	B0	
	There were 64% members	B0	

8 cont	**Average statements**	
	The members had a greater mean	B1
	The members visited for 1.5 (hours) more (on average)	B1
	The members visited for longer (on average) (than the guests)	B1
	Overall the members spent longer (in the gym) (on average)	B1
	The members' mean was 4 (hours) and the guests' was 2.5 (hours)	B1
	The members' was 4 and the guests' was 2.5 (no mention of average)	B0
	The difference in mean hours is 1.5	B0
	Spread statements	
	The members' times were more consistent	B1
	The guests' times varied more	B1
	The guests had a greater range	B1
	The range of the guests was 2 (hours) more	B1
	Members' range was 6 (hours), guests' (range) was 8 (hours)	B1
	Members were 6, guests were 8 (ambiguous)	B0
	Members visited for 6 hours, guests for 8 hours (referencing mean)	B0
	The difference in range is 2 hours	B0
	The range of the guests is high	B0

Q	Answer	Mark	Comments
9	**Alternative method 1 – algebra based on Sunita's age**		
	5×3 or 15	M1	may be implied by their algebraic total of the three ages being divided by 3
	$x - 1$ or $2x$ or $4x - 1$	M1	oe expressions any letter throughout
	x + their $(x - 1)$ + their $2x$ = their 15 or $4x - 1$ = their 15	M1dep	oe equation eg $\frac{x+x-1+2x}{3} = 5$ dep on M1M1
	$(x =)$ 4	M1dep	correct solution to their equation if the solution has a decimal part allow truncation or rounding to the nearest whole number
	8	A1	
	Alternative method 2 – algebra based on Joel's age		
	5×3 or 15	M1	may be implied by their algebraic total of the three ages being divided by 3
	$\frac{y}{2}$ or $\frac{y}{2} - 1$ or $2y - 1$	M1	oe expressions any letter throughout $2y - 1$ must not come from $y + y - 1$
	y + their $\frac{y}{2}$ + their $(\frac{y}{2} - 1)$ = their 15	M1dep	oe equation eg $\frac{y+\frac{y}{2}+\frac{y}{2}-1}{3} = 5$ dep on M1M1
	$2y$ + their y + their $(y - 2) = 2 \times$ their 15 or $4y - 2 = 30$ or $2y - 1 = 15$	M1dep	their equation with no denominator
	8	A1	

9 cont	**Alternative method 3 – trial and improvement**		
	5×3 or 15	M1	may be implied by their total of the three ages being divided by 3
	Trial of three numbers which fit the criteria, with either their sum correctly evaluated or their sum divided by 3	M1	eg $2 + 1 + 4 = 7$ or $(2 + 1 + 4) \div 3$ condone missing brackets
	Second trial of three numbers which fit the criteria, with either their sum correctly evaluated or their sum divided by 3	M1dep	dep on previous M1 eg $3 + 2 + 6 = 11$ or $(3 + 2 + 6) \div 3$ condone missing brackets
	4, 3 and 8 selected as their final combination	M1dep	any order implies M4
	8	A1	
	Additional Guidance		
	Up to M4 may be awarded for correct work seen in multiple attempts even if not subsequently used		
	Correct expressions, but the sum of the three ages is equated to 5 eg $4x - 1 = 5$		M0M1M0M0A0
	In alt 1, the correct value of x or the correct age for Joel for their two terms for Beth and Joel, with one correct, implies the first 4 marks eg x and $x + 1$ and $2x$, with $x = 3.5$ or answer 7		M1M1M1M1A0
	In alt 2, the correct value of y for their two terms for Sunita and Beth, with one correct, implies the first 4 marks eg y and $\frac{y}{2}$ and $(\frac{y}{2} + 1)$, with $y = 7$ or answer 7		M1M1M1M1A0
	In alt 1 and alt 2, condone missing brackets in equations if not recovered for up to M1M1M1 eg $x + x - 1 + 2x \div 3 = 5$ not recovered		M1M1M1M0A0

Q	Answer	Mark	Comments
10(a)	4	B1	

Q	Answer	Mark	Comments
10(b)	2 4 4 8 10 11 12 15 or 2 4 4 8 10 or 15 12 11 10 8 or 8 and 10 or $18 \div 2$ or $\frac{8+1}{2}$ th or 4.5th value	M1	full list of numbers in either order allow one missing, extra or transcription error in an otherwise full list of numbers list of first or last five numbers in either order allow only a transcription error in a list of the first or last five numbers oe works out the position of the median in the list
	9	A1	

Additional Guidance	
Ordered list in the stem of the question can be assumed to be for part (b) unless contradicted by the working seen in the working space	
Numbers in a list may be seen crossed out in an attempt to find the median	
Answer 9 from any or no list	M1A1
Puts list in order then finds the mean	M1A0
States 4.5th and gives 11.5 (oe)	M1A0

Q	Answer	Mark	Comments
10(c)	13	B1	

Q	Answer	Mark	Comments
11(a)	1	B1	

Additional Guidance	
1 with 10 indicated as the greatest frequency eg 1 scores 10	B1
1 (10)	B0
1, 10 is the most	B0
1 and 10	B0

Q	Answer	Mark	Comments
11(b)	(0 × 7 and) 1 × 10 and 2 × 8 and 3 × 7 and 4 × 5 and 5 × 3 or (0 and) 10 and 16 and 21 and 20 and 15 or 82	M1	allow one error or omission
	$\frac{(0+)\ 10+16+21+20+15}{40}$ or 82 ÷ 40 or their 82 ÷ 40	M1dep	oe eg $\frac{82}{40}$ or $\frac{41}{20}$ or $2\frac{1}{20}$
	2.05	A1	accept 2.1 or 2 with 82 ÷ 40 seen
	Additional Guidance		
	82 ÷ 6 or 82 ÷ 15		M1M0
	0 × 7 + 1 × 10 + 2 × 8 + 3 × 7 + 4 × 5 + 5 × 2 (5 × 2 is one error) 77 ÷ 40 = 1.925		M1M1A0
	7 + 10 + 16 + 21 + 20 + 15 (7 is one error) 89 ÷ 40 = 2.225		M1M1A0
	10 + 21 + 20 + 15 (16 missing is one omission) 66 ÷ 40 = 1.65		M1M1A0
	(0 +) 10 + 16 + 21 + 20 + 15 ÷ 40 with missing brackets not recovered		M1M0
	Correct products or values seen but a different method used is a choice of methods eg (0) 10 16 21 20 15 followed by 40 ÷ 6 or 40 ÷ 15		M0

Q	Answer	Mark	Comments
11(c)	$10+8+7+5+3$ or 33 or $40-7$ or 33 or $\frac{7}{40}$	M1	oe
	$\frac{33}{40}$ or 0.825 or 82.5%	A1	oe accept 0.83 or 83%
	Additional Guidance		
	M1 may be awarded for correct work, with no or incorrect answer, even if this is seen amongst multiple attempts		
	Ignore conversion attempt after correct answer seen		
	33 out of 40		M1A0
	33 : 40		M1A0

Q	Answer	Mark	Comments
12(a)	(Alina range) 14	B1	
	(Sue median) 21	B1	SC1 14 and 21 not correctly assigned

Q	Answer	Mark	Comments
12(b)	Alina and valid reason involving range	B1ft	eg Alina and lower range ft their range for Alina
	Additional Guidance		
	Quoted values must be correct for their part (a)		
	Condone "spread" for "range"		
	Part (a) Alina range 21 then indicates Sue, with Her range is lower		B1ft
	Any reason involving median		B0
	Alina, her scores are close(r) together (no mention of range)		B0
	No range calculated in part (a)		B0

Q	Answer	Mark	Comments
13	**Alternative method 1: find total**		
	4×10 or 40	M1	oe
	their $40 - 5 - 8 - 9$	M1	oe their 40 must be greater than 22
	18	A1	
	Alternative method 2: trial and improvement		
	One trial evaluated correctly	M1	eg trials 12, $\frac{5+8+9+12}{4} = 8.5$
	The correct trial evaluated correctly	M1dep	
	18	A1	
	Additional Guidance		
	Embedded 18 without being selected as answer		M2A0