Question	Answer	Mark	Comments
1(a)	120 and 132 and 96 and 156 and states that 4 out of 5 would be above 100 or 8.3… and states that 4 out of 5 would be above 100 or 10.4 × 12 = 124.8 and states this is above 100 or the hypothesis is correct or median or mode = 10 and 10 × 12 = 120 and states that median or mode is above 100 or 52 × 12 (= 624) and 5 × 100 (= 500) and states 624 > 500	B2	B1 10 × 12 or 120 and 11 × 12 or 132 and 8 × 12 or 96 and 13 × 12 or 156 or 100 ÷ 12 or 8.3… or states that 4 out of 5 would be above 100 with no or incorrect evaluations or 10.4 × 12 = 124.8 or median or mode = 10 and 10 × 12 = 120 or 52 × 12 (= 624) and 5 × 100 (= 500)
	Additional Guidance		
	'4 out of 5' is implied by 'most people'		
	(10 + 11 + 8 + 10 + 13) ÷ 5 = 10.4		B0
	52 × 12 or 624 alone		B0

1(b)	Any two correct reasons from The sample is biased The sample is too small They may not read at the same rate in other months	B2	oe eg people in book clubs read more books eg she should ask a lot more people eg that month may not be representative B1 any one correct reason
	Additional Guidance		
	Needs to use data from more months		B1
	The results of just 5 people used		B1

Q	Answer	Mark	Comments
2	Sometimes true Always true Always true Never true	B4	B1 for each
	Additional Guidance		
	Allow any unambiguous indication eg all 4 correct boxes contain a cross with all other boxes blank		B4
	A row with one tick and some crosses – mark the tick		
	A row with more than one tick is B0 for that row		
	Mark the boxes not the working lines		

Q	Answer	Mark	Comment
3	15	B1	

<table>
<tr><th>Q</th><th>Answer</th><th>Mark</th><th>Comment</th></tr>
<tr><td rowspan="6">4</td><td>
<table>
<tr><td>8</td><td>$\frac{1}{4}$</td><td>$\frac{1}{2}$</td></tr>
<tr><td>$\frac{1}{16}$</td><td>1</td><td>16</td></tr>
<tr><td>2</td><td>4</td><td>$\frac{1}{8}$</td></tr>
</table>
</td><td>B2</td><td>oe values eg 0.0625 for $\frac{1}{16}$
condone unprocessed values
eg for 8 allow $\frac{16}{2}$ or $\frac{8}{1}$
B1 at least three of the eight rows, columns and diagonals have a product of 1
do not count rows, columns or diagonals that only have ones
do not count incomplete rows, columns or diagonals</td></tr>
<tr><td colspan="3">Additional Guidance</td></tr>
<tr><td colspan="2">If decimal values are used they must be exact</td><td></td></tr>
<tr><td colspan="2">The given values in the grid cannot be changed</td><td></td></tr>
<tr><td colspan="2">B1 can be awarded with an incomplete grid eg
<table>
<tr><td>8</td><td>$\frac{1}{4}$</td><td></td></tr>
<tr><td>$\frac{1}{16}$</td><td>1</td><td></td></tr>
<tr><td>2</td><td>4</td><td>$\frac{1}{8}$</td></tr>
</table>
</td><td>B1</td></tr>
<tr><td colspan="2">
<table>
<tr><td>1</td><td>$\frac{1}{4}$</td><td>1</td></tr>
<tr><td>1</td><td>1</td><td>$\frac{1}{2}$</td></tr>
<tr><td>1</td><td>4</td><td>$\frac{1}{8}$</td></tr>
</table>
Three products of 1 but two are not counted as they only have ones
</td><td>B0</td></tr>
</table>

Q	Answer	Mark	Comments
5	$4 \times 3 \times 2\ (\times 1) \times 2$ or $5 \times 4 \times 3 \times 2\ (\times 1) \times \frac{2}{5}$ or $120 \times \frac{2}{5}$	M1	oe
	48	A1	SC1 12 or 24 or 72 or 120
	Additional Guidance		
	12 is the number of possible 5-digit numbers ending in two odd digits		
	24 is the number of possible 5-digit numbers ending in 7 or the number of possible 5-digit numbers ending in 9		
	72 is the number of possible 5-digit even numbers		
	120 is the number of possible 5-digit numbers		
	Ignore any listing of possible numbers		

Q	Answer	Mark	Comments
6(a)	$2k^2 + 3 - (9k + 7)\ (= 1)$ or $2k^2 - 9k - 4\ (= 1)$	M1	oe eg $9k + 7 + 1 = 2k^2 + 3$ or $9k + 8 = 2k^2 + 3$
	$2k^2 - 9k - 5\ (= 0)$	A1	terms in any order implied by $k = 5$ (and $-\frac{1}{2}$) or correct answer
	$(2k + 1)(k - 5)\ (= 0)$ or $(k =)\ \frac{--9 \pm \sqrt{9^2 - 4 \times 2 \times -5}}{2 \times 2}$ or $(k =)\ \frac{9 \pm \sqrt{121}}{4}$ or $(k =)\ 2.25 \pm \sqrt{7.5625}$	M1	oe correct factorisation or correct use of quadratic formula or correct use of completing the square for their 3-term quadratic
	$(k =)\ 5$ (or $-\frac{1}{2}$)	A1ft	ft at least one solution for their 3-term quadratic implied by correct answer
	54	A1	

Additional Guidance	
Answer 54 not from incorrect working	5 marks
Trial and improvement scores 0 or 5	
Use of inequalities can score up to M0A0M1A1ftA0	
Condone 52, 53, 54 on answer line	5 marks
54 and 4.5	4 marks
$2k^2 + 3 - 9k + 7\ (= 1)$	M0
$2k^2 - 9k + 9\ (= 0)$	A0
$(2k - 3)(k - 3)\ (= 0)$	M1
$k = 3$ (or $\frac{3}{2}$)	A1ft
22	A0

Q	Answer	Mark	Comments
6(b)	**Alternative method 1**		
	$\left(\sqrt{x}+1\right)^2$ or $\left(\sqrt{x}+1\right)\left(\sqrt{x}+1\right)$	M1	
	$\left(\sqrt{x}+1\right)^2$ or $\left(\sqrt{x}+1\right)\left(\sqrt{x}+1\right)$ and $x+\sqrt{x}+\sqrt{x}+1$ $=x+2\sqrt{x}+1$	A1	SC1 takes any square number and shows that $x+2\sqrt{x}+1$ gives the next square number
	Alternative method 2		
	$x=n^2$	M1	any letter for n except x
	$(n+1)^2=n^2+2n+1$ $=x+2\sqrt{x}+1$	A1	SC1 takes any square number and shows that $x+2\sqrt{x}+1$ gives the next square number
	Alternative method 3		
	$x=n^2$	M1	any letter for n except x
	$n^2+2\sqrt{n^2}+1=n^2+2n+1$ and $(n+1)^2$	A1	SC1 takes any square number and shows that $x+2\sqrt{x}+1$ gives the next square number
	Additional Guidance		
	Remember that the answer is given in the question		
	eg for SC1 $x=9, 9+2\times3+1=16$		SC1
	Allow $x^{\frac{1}{2}}$ for $\sqrt{x}$ throughout		
	If only multiplication in a grid is seen then this is not sufficient for A1		