Q1. A factory makes three sizes of bookcase.
The sizes are small, medium and large.

Each bookcase can be made from pine or oak or yew.

The two-way table shows some information about the number of bookcases the factory makes in one week.

	Small	Medium	Large	Total
Pine	7			23
Oak		16		34
Yew	3	8	2	13
Total	20		14	

Complete the two-way table.

(Total 3 marks)

Q2. 80 children went on a school trip.
They went to London or to York.

23 boys and 19 girls went to London.
14 boys went to York.

(a) Use this information to complete the two-way table.

	London	**York**	**Total**
Boys			
Girls			

Total			

(3)

One of these 80 children is chosen at random.

(b) What is the probability that this child went to London?

.....

(1)
(Total 4 marks)

Q3. 120 children went on a school activities day.
Some children went bowling.
Some children went to the cinema.
The rest of the children went skating.

66 of these children were girls.
28 of the 66 girls went bowling.
36 children went to the cinema.
20 of the children who went to the cinema were girls.
15 boys went skating.

Work out the number of children who went bowling.

.....

(Total 4 marks)

Q4. A teacher asked 30 students if they had a school lunch or a packed lunch or if they went home for lunch.

17 of the students were boys.
4 of the boys had a packed lunch.
7 girls had a school lunch.
3 of the 5 students who went home were boys.

Work out the number of students who had a packed lunch.

.....

(Total 4 marks)

Q5. Nadine asked 50 people which of the newspapers the Times, the Guardian and the

Telegraph they like best.
Here is information about her results.

19 out of the 25 males said they like the Telegraph best.
5 females said they like the Guardian best.
4 out of the 7 people who said they like the Times best were female.

Work out the number of people who like the Telegraph best.

.....

(Total 4 marks)

Q6. The two-way table gives some information about how 100 children travelled to school one day.

	Walk	**Car**	**Other**	**Total**
Boy	15		14	54
Girl		8	16	
Total	37			100

(a) Complete the two-way table.

(3)

One of the children is picked at random.

(b) Write down the probability that this child walked to school that day.

.....

(1)
(Total 4 marks)

Q7. The two-way table gives some information about how 100 children travelled to school one day.

	Walk	**Car**	**Other**	**Total**
Boy	15		14	54
Girl		8	16	
Total	37			100

(a) Complete the two-way table.

(3)

One of the children is picked at random.

(b) Write down the probability that this child walked to school that day.

.....

(1)

One of the girls is picked at random.

(c) Work out the probability that this girl did **not** walk to school that day.

.....

(2)
(Total 6 marks)

M1.

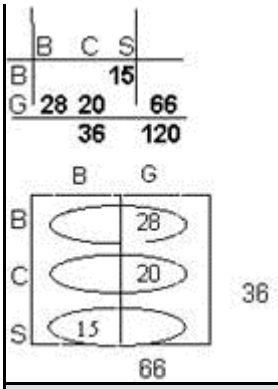
Answer	Mark	Additional Guidance
7 **12** **4** 23 **10** 16 **8** 34 3 8 2 13 20 **36** 14 **70**	3	**B3** for fully correct table (**B2** for 4 or 5 correct entries, **B1** for 2 or 3 correct entries)
		Total for Question: 3 marks

M2.

	Answer	Mark	Additional Guidance
(a)	**23** **14** 37 **19** 24 43 42 38 **80**	3	**B3** for all correct (**B2** for 5, 6, 7 or 8 correct) (**B1** for any 2 of the 4 given correctly placed)
(b)	$\frac{42}{80}$	1	**B1** for $\frac{"42"}{"80"}$ oe
			Total for Question: 4 marks

M3.

Working	Answer	Mark	Additional Guidance

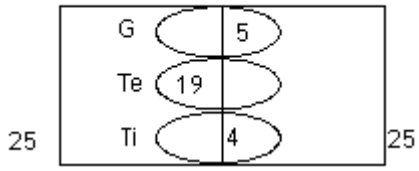
	51	4	**M1** for a two-way table or Venn diagram with bowling, cinema, skating, boys and girls labelled or a list of at least two combinations clearly labelled. **M1** for attempt to find an unknown eg 66 − 28 − 20, 120 − 66, 36 − 20 **A1** for 16 or 18 or 54 or 23 or 33 **A1** cao (Note: 36 + 15 = 51 scores no marks)
			Total for Question: 4 marks

M4.

Working	Answer	Mark	Additional Guidance
30 – 17 = 13 5 – 3 = 2 13 – 2 – 7 = 4 4 + 4 OR 17 – 4 – 3 = 10 10 + 7 = 17 30 – 5 – 17 OR 17 – 4 = 13 13 + 7 = 20 20 + (5 – 3) = 22 30 – 22 | B	G	Total | Packed	4		| School lunch		7	| Home	3		5 | Total	17		30		8	4	**M1** for calculation of total girls 30 – 17 (= 13) **M1** for calculation of girls going home 5 – 3 (= 2) **M1** for calculation of girls having packed lunch "13" – "2" – 7 (= 4) **M1** for 17 – 4 – 3 (= 10) **M1** for "10"+ 7 (= 17) **M1** for 30 – 5 – "17" **M1** for 17 – 4 + 7 (= 20) **M1** for "20" + (5 – 3) **M1** for 30 – "22" **A1** cao [Interim answers may appear in a 2-way table or Venn diagram] **M1** for a 2-way table or diagram, with clear labeling, showing at least 3 pieces of the given information correctly placed **A1** for 13 (girls) or 10 (boys, school lunch) **A1** for 2 (girls, home) or 17 (total school lunch) **A1** cao [Note: for the award of the final **A1**, the 8 in any diagram must be highlighted, in some way, to be the required answer]

	Total for Question: 4 marks

M5.

Working	Answer	Mark	Additional Guidance
e.g. Gu.. Te. Ti. Tot. Male 19 25 Female 5 4 7 50 Male Female  	35	4	**M1** for a two-way table or Venn diagram. Telegraph, Times, Guardian and male, female labelled **A1** for 4, 5, 7, 19 and 25 **M1** for attempt to find 16 (condone one error) **A1** cao [NB Two-way table/Venn diagram need not contain all numbers]
			Total for Question: 4 marks

M6.

	Working	Answer	Mark	Additional Guidance
(a)	15 **25** 14 54 **22** 8 16 **46** 37 **33** **30** 100	Table	3	**B3** for all 5 correct (**B2** for 3 or 4 correct) (**B1** for 1 or 2 correct)
(b)		$\frac{37}{100}$	1	**B1** $\frac{37}{100}$ oe

M7.

	Working	Answer	Mark	Additional Guidance
(a)	15 **25** 14 54 **22** 8 16 **46** 37 **33** **30** 100	Table	3	**B3** for all 5 correct (**B2** for 3 or 4 correct) (**B1** for 1 or 2 correct)
(b)		$\frac{37}{100}$	1	**B1** $\frac{37}{100}$ oe
(c)		$\frac{24}{46}$	2	**B2** for $\frac{"'46'-'22'"}{'46'}$ oe, ft from no of girls (**B1** 16 + 8 or 24 or '46' seen)
				Total for Question: 6 marks

E1. About two thirds of the candidates were able to score full marks for completing the two-way table accurately. Calculation slips were the most frequent cause for errors, but a significant number of candidates lost a mark for writing 140 in the bottom right hand corner of the table.

E2. Questions on two-way tables are often to be found on these papers and this paper was no exception. However, the success rate was not as high as on previous papers because this time the candidates had to fill in ALL the numbers on the table rather than just fill in the gaps.
This resulted in many not having a correct table because they either did not read the wording correctly or misunderstood what was given.
Many students did not read the first line of information and so many did not put the number 80 on the table. Others saw that 14 boys went to York and then assumed that this meant that no girls went to York.
By far the most common error was to have the second row of the table as 19, 0, 19 which generally meant that they had a total of 56 children on the school trip.

In part (b) there were quite a few correct answers or correct from their table but there were still those students who scored no marks because they gave their probability as a ratio which is not acceptable.
Over 31% scored all 4 marks with a further 36% scoring 3 marks and another 25% scoring 2 marks.

##

Foundation

Very few two-way tables were seen, a simple device to solve the problem, many candidates wrote down lists of options and figures. From this method, many were able to find that there were 54 boys but were unable to continue to extract further relevant information from the given data.

Higher

Only a small proportion of candidates constructed and used a two-way table to solve the problem posed by this question. These candidates were nearly always successful. Again, some candidates could solve the problem quickly and easily. However, most candidates' solutions seemed to consist of calculations scattered around the working space. A generous mark

scheme allowed examiners to award credit to candidates who made limited progress towards a correct solution. A small proportion of candidates simply added up 28, 36, 20 and 15 and subtracted their answer from 120. Over a half of all candidates scored full marks whilst most other candidates scored at least one mark for their responses.

##

Foundation

Few candidates displayed the given information in a 2-way table. Those who did, usually correctly completed it gaining full marks; although they needed to highlight the required answer to gain full credit.

The working of a great number of candidates, in this question, was very difficult to follow. Few candidates appeared to be working in any systematic way; consequently it was difficult to assess the thinking of candidates. In such cases, it was often only possible to award one or two marks, usually for sight of 30 – 17 = 13, the number of girls, or 5 – 3 = 2, the number of girls going home for lunch. Students should be encouraged to explain, by labelling, their working in questions like this.

Higher

There were many more two way tables than in November and the majority of candidates who used a well-labelled two-way table got full marks. (This method must be encouraged by centres.) Some candidates lost the final mark because they did NOT highlight their answer in the table and failed to put the answer on the answer line. Less successful were attempts to answer the question without any real structure. In these responses, numbers appeared without labels making it difficult to award credit. This question particularly highlighted the importance of organising and labelling the given information.

E6. This question was answered well by the vast majority of candidates.

The most common errors in part (a) were due to the failure to carry out simple additions and subtractions accurately with incorrect entries seen most often in the ‘Car’ column. Some candidates failed to notice the empty space in the ‘Total’ column and left this blank. In these cases it was apparent that candidates had not carried out a horizontal check as well as a vertical one. The probability in part (b) was usually correct.

E7. Foundation

The two-way table in part (a) was usually completed accurately, although a number of arithmetic errors were in evidence. In the table, the car column caused the most problems for candidates.

In part (b), the correct answer of $\frac{37}{100}$ (or 0.37 or 37%) was the most common response. Answers of 37 and 1/37 were also seen. There were also several who did not realise a numerical answer was required, responding with "unlikely"

In part (c), most candidates scored at least one mark for using either 46 or 24 in their working. Many failed to score full marks with answers of 1/46 and 24/100 being common errors. Some failed to see "not", giving an answer of 22/46. Following the correct answer in (b), many candidates gave $\frac{63}{100}$ as their answer in (c), having not fully read the question correctly.

There were less candidates giving unacceptable notation but ratio and 'out of' were still seen on several occasions.

Higher

Points were usually plotted correctly although a few candidates clearly missed this part of the question. A number initially misread the table horizontally and so plotted (65, 80) but then realised and rectified their mistake when unable to plot (100, 110) on the axes provided. In part (b) the majority of candidates chose to describe a dynamic relationship along the lines of "the taller the sheep, the longer it is" rather than just stating positive correlation. Incorrect answers most commonly seen involved "direct proportion" or an expression of the difference between the variables. A number referred to weight of sheep rather than height. In part (c) neither a line of best fit nor vertical line at 76cm was usually seen. Instead candidates judged the value by eye and in most cases gained full marks by being within the acceptable range of answers. Errors that did occur were due to the 2 axes being confused or misreading of the vertical scale.