

1. Bob carried out a survey of 100 people who buy tea.

He asked them about the tea they buy most.

The two-way table gives some information about his results.

	Tea bags	Packet tea	Instant tea	Total
50 g	2	0	5	
100 g	35	20		60
200 g	15			
Total		25		100

Complete the two-way table.

(Total 3 marks)

2. 60 British students each visited one foreign country last week.
The two-way table shows some information about these students.

	France	Germany	Spain	Total
Female			9	34
Male	15			
Total		25	18	60

- (a) Complete the two-way table.

(3)

One of these students is picked at random.

- (b) Write down the probability that the student visited Germany last week.

.....
(1)
(Total 4 marks)

3. 80 students each study one of three languages.

The two-way table shows some information about these students.

	French	German	Spanish	Total
Female	15			39
Male		17		41
Total	31	28		80

Complete the two-way table.

(Total 2 marks)

4. 80 students each study one of three languages.

The two-way table shows some information about these students.

	French	German	Spanish	Total
Female	15			39
Male		17		41
Total	31	28		80

- (a) Complete the two-way table.

(2)

One of these students is to be picked at random.

- (b) Write down the probability that the student picked studies French.

.....

(1)

(Total 3 marks)

5. 56 students were asked if they watched tennis yesterday.
20 of the students are boys.
17 girls watched tennis.
13 boys did not watch tennis.

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

	Boys	Girls	Total
Watched tennis			
Did not watch tennis			
Total			

(3)

One of these students is to be chosen at random.

- (b) Write down the probability that the student chosen is a boy.

.....

(2)

(Total 5 marks)

6. The two-way table gives some information about the lunch arrangements of 85 students.

	School lunch	Packed lunch	Other	Total
Female	21		13	47
Male		5		
Total	40			85

Complete the two-way table.

(Total 3 marks)

7. The two-way table shows some information about students in Years 7, 8 and 9.

	Year 7	Year 8	Year 9	Total
Can swim		61	74	
Cannot swim	33			60
Total			84	250

Complete the two-way table.

(Total 3 marks)

8. The table shows some information about the medals won by each of 6 countries at the 2004 Olympic Games.

Country	Medals			Total
	Gold	Silver	Bronze	
United States	35	39	29	103
Russia	27	27	38
Australia	17	16	49
Germany	14	16	18	48
Italy	10	11	11	32
Great Britain	9	9	12	30

(a) Complete the table for Russia and Australia. (2)

(b) How many bronze medals did Russia win?
 (1)

(c) Which country won 10 gold medals?
 (1)

Great Britain won a total of 30 medals.

(d) Work out the fraction of these medals which were silver.
 Give your fraction in its simplest form.
 (2)

(e) Find the ratio of the total number of medals won by Germany to the total number of medals won by Italy.
 Give your ratio in its simplest form.
 (2)
(Total 8 marks)

9. Three rock bands played at a music festival.
The names of the bands were The Rebels, ATC and Wand

100 teenagers were asked which band they had enjoyed most.
The two-way table gives information about their replies.

Complete the two-way table.

	The Rebels	ATC	Wand	Total
Male	11		15	32
Female		18		
Total	33			100

(Total 3 marks)

10. 200 adults were asked which one of English, Mathematics or Science they enjoyed most.

The two-way table shows some information about their answers.

	English	Mathematics	Science	Total
Female	78	20		120
Male		22		80
Total		42	60	200

Complete the two-way table.

(Total 3 marks)

11. Each student at Redmond School studies one foreign language. Students can choose from French, German and Spanish.

The headteacher wants to show how many boys and how many girls study each language.

- (a) Draw a two-way table the headteacher could use to show this information.

(2)

23 boys study French.

- (b) Write the number 23 in the correct place in your two-way table.

(1)

(Total 3 marks)

12.

	Boys	Girls	TOTAL
Liked coffee			
Did not like coffee			
TOTAL			

30 students were asked if they liked coffee.

20 of the students were girls.

6 boys liked coffee.

12 girls did **not** like coffee.

Use this information to complete the two way table.

(Total 3 marks)

13. Bob asked 100 adults which one type of music they enjoyed. They could choose Jazz or Rock or Classical or Folk music.

The two-way table shows some information about their answers.

	Jazz	Rock	Classical	Folk	Total
Men	12		19	4	52
Women		23			
Total	21			11	100

- (a) Complete the two-way table.

(3)

- (b) How many women did **not** choose Classical music?

.....

(1)

(Total 4 marks)

14. Each child at a party can choose an ice cream.
They can choose a flavour from vanilla, strawberry or chocolate.
They can have their ice cream in a tub or in a cone.

Jill wants to show how many tubs and how many cones she needs for each flavour of ice cream.

- (a) Draw a two-way table Jill could use to show this information.

(2)

Eight children choose chocolate ice cream in a tub.

- (b) Write the number 8 in the correct place in your two-way table.

(1)

(Total 3 marks)

15. Some bulbs were planted in October.
The ticks in the table shows the months in which each type of bulb grows into flowers.

		Month					
		Jan	Feb	March	April	May	June
Type of bulb	Allium					✓	✓
	Crocus	✓	✓				
	Daffodil		✓	✓	✓		
	Iris	✓	✓				
	Tulip				✓	✓	

- (a) In which months do tulips flower?

.....

(1)

- (b) Which type of bulb flowers in March?

.....

(1)

- (c) In which month do most types of bulb flower?

.....

(1)

- (d) Which type of bulb flowers in the same months as the iris?

.....

(1)

(Total 4 marks)

16. 80 students each study one of three languages.
The two-way table shows some information about these students.

	French	German	Spanish	Total
Female				
Male		17		
Total	31	28		80

39 of the 80 students are female.
15 of the 39 female students study French.

Complete the two-way table.

(Total 4 marks)

17. 120 adults were each given a newspaper.
They were given one of, The Protector, The Daily Globe or The Truth.
The two-way table shows some information about the newspaper they were each given.

Complete the two-way table.

	The Protector	The Daily Globe	The Truth	Total
Male	23		31	72
Female		19		
Total	34			120

(Total 3 marks)

18. The two-way table gives some information about the lunch arrangements of 85 students.

	School lunch	Packed lunch	Other	Total
Female	21		13	47
Male		5		
Total	40			85

Complete the two-way table.

(Total 3 marks)

19. 60 students were born in England, Scotland or Wales.
The two-way table shows some information about these students.

	England	Scotland	Wales	Total
Female			4	40
Male		7		
Total	42	12		60

- (a) Complete the two-way table.

(3)

One of the students is picked at random.

- (b) Find the probability that this student is male and **not** born in England.

.....

(2)

(Total 5 marks)

20. 90 adults each chose one drink.
The drinks were lemonade, fruit juice or cola.

The two-way table shows some information about their choices.

	Lemonade	Fruit juice	Cola	Total
Male	13			
Female	11	9		34
Total			20	90

- (a) Complete the two-way table.

(3)

One of the females is picked at random.

(b) Find the probability that she will choose fruit juice.

.....

(2)
(Total 5 marks)

21. The two-way table gives some information about some cars in a garage.

	Ford	Toyota	Fiat	Total
3-door	12		8	
4-door		11		34
Total	29	18		

Complete the two-way table.

(Total 3 marks)

01.

			7
		5	
	5	13	33
52		23	

*B3 all correct
(B2 for 4, 5 or 6 correct
B1 for 2 or 3 correct)*

3

[3]

02.	(a)	2	23	9	34	
		15	2	9	26	
		17	25	18	60	3

*B3 for all correct
(B2 for 4 or 5 entries correct)
(B1 for 2 or 3 entries correct)*

(b)	$\frac{25}{60}$	1
-----	-----------------	---

*B1 for $\frac{25}{60}$ or $\frac{5}{12}$ oe
 $\frac{25}{60}$ wrongly cancelled gets B1 ISW*

[4]

03.	11	13	
16	8		
	21		2

*B2 all correct
(B1 for 2 correct)*

[2]

04.	(a)	11	13	
		16	8	
			21	2

*B2 all correct
(B1 for 2 correct) sign*

(b)	$\frac{31}{80}$	1
-----	-----------------	---

B1 oe

[3]

05.	(a)	7	17	24	
		13	19	32	
		20	36	56	3

*B3 all correct
(B2 for either 2 rows or 2 columns correct)
(B1 for either 1 row or 1 column correct)*

(b) $\frac{20}{56}$

2

B2 ft for $\frac{20}{56}$ oe
(B1 for $k/56$ with $0 < k < 56$)

[5]

06.

	SL	PL	O	T
F	21	13	13	47
M	19	5	14	38
T	40	18	27	85

3

B3 for all correct
(B2 for 4 or 5 correct)
B1 for 2 or 3 correct)

[3]

07. **55** 61 74 **190**
 33 **17** **10** 60
88 **78** 84 250

55 61 74 **190**
 33 **17** **10** 60
88 **78** 84 250

3

B3 all six entries correct
(B2 for 4 or 5 entries correct)
(B1 for 2 or 3 entries correct)

[3]

08. (a) 92 and 16

2

B1 for 92
B1 for 16

(b) 38

1

B1 cao

(c) Italy

1

B1 cao

(d) $\frac{9}{30}$ 2
 $\frac{3}{10}$

B2 cao

(B1 for $\frac{9}{30}$)

(e) 48:32 2
 3:2

B2 cao

(B1 for sight of 48, 32 or two numbers in correct proportion)

SC B1 for 2:3

[8]

09. 11 6 15 32 3
 22 18 28 68
 33 24 43 100

B3 cao (B1 for 1, 2 or 3 correct, B2 for 4 or 5 correct)

[3]

10. 78 20 22 120 3
 20 22 38 80
 98 42 60 200

B3 for 4 correct answers

B2 for 2 or 3 correct answers

B1 for 1 correct answers

[3]

11. (a) table 2

B2 for 2-way table with F, G, S in column and M, F in row (or vice versa)

(B1 for only one of the above eg, F, G, S, or M, F in row/column)

(b) insert 23 1

B1 correct position

[3]

12.

6	8	14
4	12	16
10	20	30

3
- B3 for fully correct table
(B2 for 6, 7 or 8 correct)
(B1 for 3, 4 or 5 correct)
[SC: B2 for correct tallies in the body of the table **and** correct numerical totals. – B1 for each error in totals]*
- [3]**
-
13. (a)

	17	
9		9 7 48
40	28	

3
- B3 cao
(B2 for 4 correct)
(B1 for 2 correct)*
- (b) 39 1
- B1 ft for “48” – “9” or “9” + 23 + “7”*
- [4]**
-
14. (a) 2
- B2 for a correct table (B1 for either Van, Str, Choc or Tub, Cone on one axis)*
- (b) Van
Str
Choc 1
Tub
8
Cone
- B1 for 8 in correct position, dep on B1 in (a)*
- [3]**
-
15. (a) April & May 1
- B1 for both*
- (b) Daffodil 1
- B1*

(c) Feb 1
B1

(d) Crocus 1
B1

16.

15	11	13	39
16	17	8	41
31	28	21	80

4

B4 for 8 correct
(B3 for 5, 6 or 7 correct)
(B2 for 3 or 4 correct)
(B1 for 1 or 2 correct)
*S.C B2 for only 39 **and** 15 correct*

[4]

17.

23	18	31	72
11	19	18	48
34	37	49	120

3

B3 for correct table
(B2 for 4 or 5 correct entries,
B1 for 2 or 3 correct entries)

[3]

18.

	SL	PL	O	T
F	21	13	13	47
M	19	5	14	38
T	40	18	27	85

See working 3

B3 for all correct
B2 for 4 or 5 correct
B1 for 2 or 3 correct

[3]

19.	(a)	31	5	4	40	3
		11	7	2	20	
		42	12	6	60	

*B3 for a fully correct table
(B2 for 4 or 5 correct entries)
(B1 for 2 or 3 correct entries)*

(b)	$\frac{9}{60}$ oe	2
-----	-------------------	---

M1 for 7 + "2" or 20 - "11" or sight of 9 [could be written as a fraction of 60 or some other number, but not as a denominator].

A1 for $\frac{9}{60}$ oe

Accept as a fraction, an equivalent fraction, as a decimal (0.15) or ft to $\geq 2dp$ or a percentage (15% or ft).

Anything else (eg ratio, in words, etc) award 0 marks.

[5]

20.	(a)	×	37	6	56	3
		×	×	14	×	
		24	46	×	×	

*B3 for all 6 correct
(B2 for 4 or 5 correct, B1 for 2 or 3 correct)*

(b)	$\frac{9}{34}$	2
-----	----------------	---

M1 for $\frac{x}{34}$ or $\frac{9}{90}$ oe or $\frac{46}{90}$ oe

A1 for $\frac{9}{34}$ oe

SC B1 for 9 in 34 or 9 to 34 or 9:34

[5]

21.	(12)	7	(8)	27	3
	17	(11)	6	(34)	
	(29)	(18)	14	61	

*B3 for a fully correct table
(B2 for 4 or 5 correct entries,
B1 for 1 or 2 or 3 correct entries)*

[3]

01. Mathematics A**Paper 1**

Few candidates failed to complete at least the two correct entries in the two-way table needed to score one mark and many scored 2 or 3 marks.

Paper 3

Most candidates gained full marks in this question. The only errors appeared to occur in the bottom right of the table.

Mathematics B Paper 16

Very well done by all but a small minority. Two marks and more usually three were gained in this question.

02. Mathematics A**Paper 1**

- (a) This question was answered totally correctly by 51% of candidates. The main error was in the calculation of the numbers for Germany. Only 24% of candidates scored no marks.
- (b) Only 25% of candidates answered this question correctly. Many candidates wrote the probability incorrectly as a ratio or a description e.g. 25 out of 60 and some even made it 25%.

Paper 3

Most candidates were able to gain full marks in part (a) by completing the two-way table correctly. Any errors tended to be made finding the two missing totals. In part (b) about three quarters of the candidates gave the correct probability. It was disappointing that some candidates did not express the probability in a correct form, i.e. as a fraction, a decimal or a percentage.

Mathematics B Paper 14

Although candidates must have had practice at two-way tables presented in this form by working the various modular past papers, only 47% completed part (a) correctly. However most candidates were able to fill in at least two or three values correctly, thereby scoring at least one mark. Only 26% of the candidates were able to successfully answer part (b) correctly.

- 03.** The completion of the two-way table was attempted by almost every candidate and many scored at least one mark for two correct entries.

04. The two way table was well attempted, with most candidates gaining full marks. Part (b) was also well answered, with most candidates using correct probability notation. The most common incorrect answer seen was $\frac{1}{3}$ or $\frac{1}{31}$.

05. This question was answered well and provided most candidates with a successful start to the paper. Almost all candidates demonstrated that they knew how to complete a two way table but some lost marks unnecessarily by not taking sufficient care when entering the numbers provided into the table. Even those who made errors in the table often gained both marks in part (b).

Common incorrect answers were $\frac{1}{20}$ and $\frac{20}{36}$. Few candidates expressed the probability in an unacceptable form.

06. Specification A

Foundation Tier

Candidates tend to find completing a two-way table a familiar task and this year was no exception with over $\frac{3}{4}$ of the candidates scoring at least 1 mark for providing 2 or 3 correct numbers in the table. Nearly half the candidates scored all 3 marks.

Intermediate Tier

This was a well answered question, with nearly all candidates receiving full marks.

Specification B

Foundation Tier

Nearly all candidates attempted to complete the two way table and the question proved to be a good discriminator. 44% of candidates earned all the marks available. Only 23% of candidates failed to gain any credit for their answers. More organised working and checking of arithmetic might have led to fewer careless errors being made.

07. Foundation Tier

The vast majority of candidates understood what was required in this question and answers were usually accurate. About two thirds of the marks available were awarded. Few candidates failed to score at least one mark.

Intermediate Tier

This was a well-answered question in which most candidates gained full marks. The most common errors were in calculating the 17, 10, 78 in the middle of the table.

- 08.** The first three parts of this question were answered very well with nearly all candidates gaining at least 3 of the first four marks available. Working out the simplified fraction in part (d) proved more of a challenge. However, about 60% of candidates were awarded at least one mark for giving the fraction in an unsimplified form even if they could not give its simplest form. Responses to part (e) were also good with nearly all candidates using acceptable notation. Where candidates did not give the answer 3:2 it was often through incorrect or incomplete simplification or because they gave 2:3 as their answer.
- 09.** This was very well done with a great many candidates accurately completing the two-way table. Those not gaining 3 marks usually scored at least 1, and more often 2 marks. Only a very small number failed to score at all.
- 10.** Nearly all candidates achieved full marks on this question making it the most successfully answered question on the paper.
- 11.** Drawing a two-way table proved to be more demanding than previously seen. The idea of presenting information in rows and columns did not come naturally, which meant rather more errors than might have been expected. Tallies were frequently seen within the table.
- 12.** A very successful question where very few failed to score; most candidates gaining full marks.
- 13.** This question was very well done with few candidates failing to score at least 2 of the 4 possible marks. Poor arithmetic, rather than a lack of understanding accounted for most of the errors in part (a). The most popular errors in part (b) were to give an answer of 9, the number of women who did choose Classical music or 91 ($100 - 9$).
- 14.** Part (a) was very well done indeed with most diagrams, although not always being two-way, certainly being fit for purpose, and having a clear space in which the answer to part (b) could be inserted. However a significant number of candidates failed to gain the mark in part (b) possibly because they failed to read that part of the question. A significant number of candidates put the “8” in the total or tally column rather than the specific column/row for chocolate tubs. Some failed to include the number “8” preferring to draw 8 tally marks; this gained no marks.

15. This question was very well answered by most candidates. The most common error was to put crocus and daffodil in part (d).
16. Those candidates that recognised where to place the given numbers (39 and 15) on the table generally went on to complete the two-way table successfully. Problems arose when this was not the case although candidates were able to access at least one mark easily by calculating that there were 11 female students who studied German and 21 students who studied Spanish.
17. The two-way table was very well answered and many candidates gained full marks.
18. Very few candidates failed to score well here, with many gaining two or full marks for accurately completing the two-way table.
19. This was another well answered question, with most candidates giving the correct numbers in the table. Writing the probability in part (b) caused problems for many. Not only had they to add the two numbers from the table for the numerator, but they also had to select the correct number for the denominator. For the numerator this was a “follow-through” mark; many chose three or more numbers to add. It was common to see 20 picked as a denominator. Few used incorrect probability notation, nearly all giving their answer as a fraction.
20. A large proportion of candidates were able to score all 3 marks in the first part of this question. Others were able to pick up one or two marks for finding some correct values.
- Candidates found the second part of the question more demanding. Relatively few were awarded 2 marks for the correct answer.
- Common incorrect responses included $\frac{9}{46}$ (0 marks), $\frac{9}{90}$ (1 mark) and $\frac{46}{90}$ (1 mark). It was encouraging to find that nearly all candidates gave their answers as fractions. There were few answers given as a percentage or decimal (acceptable if correct) or in “out of”, “in” or ratio form. It was disappointing to see a significant number of integer answers.
21. Most candidates scored at least 1 mark on this question, generally for getting 7 and 17 correct. Those who scored 2 marks tended to get the bottom ‘Total’ row incorrect. Even though this was on the calculator section of the paper, many calculations were seen in the space below the question suggesting quite a few candidates did not have access to a calculator. Nearly 80% of the candidates scored all 3 available marks.