



- 1 Pupils in Year 7 chose a drink or a snack for break.

	Drink	Snack	Total
Boys	12	8	20
Girls	9	11	20
Total	21	19	40

- a. How many girls chose a snack?
b. How many pupils chose a drink?

(2 marks)

a)

Girls row, Snack column

11

b)

Total row, Drink column

21

- 2 80 students each chose one club: Art, Music or Drama.
The two-way table shows some information about their choices.

	Art	Music	Drama	Total
Boys	14		9	35
Girls		18	11	
Total				80

Complete the two-way table.

(3 marks)

$$\text{Boys Music} = 35 - 14 - 9 = 12$$

$$\text{Girls Total} = 80 - 35 = 45$$

$$\text{Girls Art} = 45 - 18 - 11 = 16$$

Column totals

$$\text{Art} = 14 + 16 = 30, \text{Music} = 12 + 18 = 30, \text{Drama} = 9 + 11 = 20$$

Check

$$30 + 30 + 20 = 80$$

3

80 people watched a match at a sports club. Each person watched either football or rugby.

45 of the people were adults. The rest were children.

28 of the children watched football.

19 of the adults watched rugby.

Use this information to complete the two-way table.

	Football	Rugby	Total
Adults			
Children			
Total			

(3 marks)

$$\text{Children total} = 80 - 45 = 35$$

$$\text{Adults football} = 45 - 19 = 26$$

$$\text{Children rugby} = 35 - 28 = 7$$

$$\text{Football total} = 26 + 28 = 54, \text{ Rugby total} = 19 + 7 = 26$$

Check

$$54 + 26 = 80$$

4

30 people were asked whether they travel to work by car or by bus.

	Car	Bus	Total
Men	11		17
Women		7	
Total			30

Complete the table.

(3 marks)

$$\text{Men bus: } 17 - 11 = 6$$

$$\text{Women total: } 30 - 17 = 13$$

$$\text{Women car: } 13 - 7 = 6$$

$$\text{Car total: } 11 + 6 = 17$$

$$\text{Bus total: } 6 + 7 = 13$$

6, 6, 13, 17, 13

- 5 120 Year 10 students each study exactly one language, French or Spanish.
66 of the students are girls.
28 boys study French.
39 girls study Spanish.
Work out how many students study French.

(3 marks)

$$\begin{aligned}\text{Boys} &= 120 - 66 = 54 \\ \text{Girls studying French} &= 66 - 39 = 27 \\ \text{Students studying French} &= 28 + 27 = 55\end{aligned}$$

55

- 6 90 members of a gym each went to one class, yoga or spin.
 $\frac{2}{5}$ of the members are men.
21 of the men went to spin.
25 of the women went to yoga.
Work out how many members went to yoga in total.

(3 marks)

$$\begin{aligned}\text{Men} &= \frac{2}{5} \text{ of } 90 = 36, \text{ so women} = 90 - 36 = 54 \\ \text{Men at yoga} &= 36 - 21 = 15 \\ \text{Yoga total} &= 15 + 25 = 40\end{aligned}$$

40

- 7 200 people were asked whether they prefer to shop online or in store.
112 of the people were aged under 40. The rest were aged 40 or over.
74 of the people aged under 40 prefer to shop online.
61 of the people aged 40 or over prefer to shop in store.
Work out how many of the 200 people prefer to shop online.

(3 marks)

$$\begin{aligned}\text{People aged 40 or over} &= 200 - 112 = 88 \\ \text{Aged 40 or over preferring online} &= 88 - 61 = 27 \\ \text{Online total} &= 74 + 27 = 101\end{aligned}$$

101

8

Pupils in Year 10 chose French or Spanish.

	French	Spanish	Total
Boys	18	14	32
Girls	13	25	38
Total	31	39	70

- a. How many more girls than boys chose Spanish?
 b. One pupil is picked at random. Write the probability that the pupil is a boy who chose French, as a fraction in its simplest form.

(3 marks)

a)

$$25 - 14 = 11$$

11

b)

18 out of 70

$$\frac{18}{70} = \frac{9}{35}$$

$\frac{9}{35}$

9

150 students travel to school by bus, by car or by walking.

The two-way table shows some information.

	Bus	Car	Walk	Total
Year 7	24		30	80
Year 8		18		
Total	55			150

Complete the two-way table.

(3 marks)

$$\text{Year 7 car} = 80 - 24 - 30 = 26$$

$$\text{Year 8 total} = 150 - 80 = 70$$

$$\text{Year 8 bus} = 55 - 24 = 31$$

$$\text{Year 8 walk} = 70 - 31 - 18 = 21$$

$$\text{Car total} = 26 + 18 = 44, \text{ Walk total} = 30 + 21 = 51$$

Check

$$55 + 44 + 51 = 150$$

10

A sports club has 132 members. Each member plays exactly one sport, badminton or squash.

72 of the members are female.

The number of male members who play squash is twice the number of male members who play badminton.

45 female members play badminton.

Work out the total number of members who play badminton.

(4 marks)

$$\text{Male members} = 132 - 72 = 60$$

Let male badminton players = b , then male squash players = $2b$, so $3b = 60$ and $b = 20$

$$\text{Male badminton} = 20, \text{ male squash} = 40$$

$$\text{Badminton total} = 45 + 20 = 65$$

65

11

One morning a cafe sold 90 drinks. Each drink was tea, coffee or hot chocolate, and each drink was small or large.

34 of the drinks were tea. 14 of the teas were large.

41 of the drinks were coffee. 26 of the coffees were large.

9 of the hot chocolates were large.

Work out how many small drinks the cafe sold.

(4 marks)

$$\text{Small teas} = 34 - 14 = 20$$

$$\text{Small coffees} = 41 - 26 = 15$$

$$\text{Hot chocolates} = 90 - 34 - 41 = 15, \text{ so small hot chocolates} = 15 - 9 = 6$$

$$\text{Small drinks} = 20 + 15 + 6 = 41$$

41

12

80 students sat a mock exam. Each student is in Year 10 or Year 11.

47 of the students are in Year 10.

35 of the Year 10 students passed the exam.

62 students passed the exam in total.

One of the students who passed the exam is chosen at random.

Find the probability that this student is in Year 11.

Give your answer as an exact fraction.

(4 marks)

$$\text{Year 11 students who passed} = 62 - 35 = 27$$

The student is chosen from the 62 who passed

$$P(\text{Year 11}) = \frac{27}{62}$$

$\frac{27}{62}$

13

120 people at a conference are delegates or speakers. Each person chose one workshop: Coding, Design or Marketing.

There are 30 speakers.

$\frac{1}{3}$ of the speakers chose Coding.

8 speakers chose Marketing.

36 delegates chose Design.

Equal numbers of delegates chose Coding and Marketing.

a. Complete the two-way table to show this information.

	Coding	Design	Marketing	Total
Delegates		36		
Speakers			8	30
Total				120

b. One of the 120 people is chosen at random. Work out the probability that this person chose Coding.

(5 marks)

Speakers choosing Coding = $\frac{1}{3}$ of 30 = 10, so speakers choosing Design = 30 - 10 - 8 = 12

$$\text{Delegates} = 120 - 30 = 90$$

Delegates choosing Coding and Marketing = 90 - 36 = 54, shared equally, so 27 each

Complete the totals too: speakers 30, delegates 90; Coding 37, Design 48, Marketing 35. Both the row totals and column totals add to 120

$$\text{Total choosing Coding} = 10 + 27 = 37$$

$$P(\text{Coding}) = \frac{37}{120}$$