

GCSE Maths: Two-way tables and frequency trees (Higher): answers

GCSE Maths - Probability - Higher - Lesson 23.8

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch23-probability/higher/two-way-tables-and-frequency-trees/

Exercise 23K Two-way tables Non-calculator

- 1 The two-way table shows how 40 students voted for a school trip.

	Zoo	Museum	Total
Boys	14	6	20
Girls	9	11	20
Total	23	17	40

- (a) How many girls voted for the zoo?

Answer: 9

- (b) How many students voted for the museum?

Answer: 17

- (c) How many boys are there?

Answer: 20

- 2 Work out the missing numbers in each two-way table.

- (a) A club has 50 members. Some of the information is shown. Complete the table.

	Swim	Run	Total
Adults	?	11	30
Children	8	?	?
Total	?	23	50

Answer: Adults Swim: 19, Children Run: 12, Children Total: 20, Total Swim: 27

- (b) 60 people were asked whether they prefer tea or coffee. Complete the table.

	Tea	Coffee	Total
Men	16	?	35
Women	?	11	?
Total	?	?	60

Answer: Men Coffee: 19, Women Tea: 14, Women Total: 25, Total Tea: 30, Total Coffee: 30

- (c) A shop sells shirts in three sizes in two colours. Complete the table.

	Blue	White	Total
Small	7	?	18
Medium	?	15	27
Large	9	?	?
Total	?	?	70

Answer: Small White: 11, Medium Blue: 12, Large White: 16, Large Total: 25, Total Blue: 28, Total White: 42

- 3 The two-way table shows the type of ticket sold for a concert. One ticket is chosen at random from the 50. Find the probability that it is...

	Saturday	Sunday	Total
Adult	15	10	25
Child	5	20	25
Total	20	30	50

- (a) an adult ticket

Answer: $\frac{1}{2}$

- (b) for Saturday

Answer: $\frac{2}{5}$

- (c) a child ticket for Sunday

Answer: $\frac{2}{5}$

- (d) not an adult ticket

Answer: $\frac{1}{2}$

- 4 In a year group of 45 students, some are in the school band and some are not. The two-way table shows the information. Phil says: "Boys are more likely to be in the band than girls." Is Phil right? Show your working.

	In band	Not in band	Total
Boys	8	12	20
Girls	6	19	25
Total	14	31	45

Answer: Yes: boys $\frac{2}{5}$, girls $\frac{6}{25}$

- 5 120 customers at a cafe were asked whether they had a hot drink or a cold drink and whether they had a snack. The table shows the results. A customer is chosen at random. Find the probability that the customer...

	Snack	No snack	Total
Hot drink	27	18	45
Cold drink	21	54	75
Total	48	72	120

- (a) had a hot drink and a snack

Answer: $\frac{9}{40}$

- (b) had a snack

Answer: $\frac{2}{5}$

- (c) had a cold drink but no snack

Answer: $\frac{9}{20}$

- 6 The table shows 600 tickets sold for a school play. The tickets were Adult or Child, for Friday or Saturday. Complete the table and then estimate how many of the next 150 tickets sold are Child tickets for Saturday.

	Friday	Saturday	Total
Adult	150	?	330
Child	?	120	?
Total	?	?	600

Answer: 30

- 7 In a table the numbers in the cells are 6, 9, 14 and 11 and the table has no totals written in. Explain how to find the grand total and what the probability of choosing the second cell is.

Answer: 40; $\frac{9}{40}$

- 8 A doctor records whether 50 patients are Under 40 or 40 and over, and whether they have had a flu jab. A patient is chosen at random. The table shows the results. Write the answers as fractions in their simplest forms.

	Jab	No jab	Total
Under 40	3	22	25
40 and over	11	14	25
Total	14	36	50

- (a) Find the probability that the patient is under 40 and had a jab

Answer: $\frac{3}{50}$

- (b) Find the probability that the patient has not had a jab

Answer: $\frac{18}{25}$

- 9 A two-way table shows 80 students. The table has 4 cells and totals. The row totals are 50 and 30 and the column totals are 45 and 35. The number in the top-left cell is 28. Complete the table.

Answer: 28, 22, 17, 13

Exercise 23L Frequency trees Calculator allowed

- 1 At a festival 200 people were asked about their diet. $\frac{3}{5}$ of them are adults and the rest are children. $\frac{1}{4}$ of the adults and $\frac{1}{2}$ of the children are vegetarian. Draw a frequency tree and find how many people are vegetarian.

Answer: 70

- 2 In a survey of 150 people, 60% own a smartphone. Of the people who own a smartphone, 40% use a banking app. Draw a frequency tree and find how many of the 150 use a banking app.

Answer: 36

- 3 A factory makes 5000 items. 3% are faulty. A test finds 90% of faulty items and wrongly flags 2% of the good items. Complete a frequency tree and find how many items the test flags in total.

Answer: 232