Conditional Probability: Two-Way Tables

1

The table shows 70 people at an adventure park. One person is picked at random. Given that the person is a child, find the probability that they went on the zip wire.

	Climbing	Zip wire	Total
Adult	18	12	30
Child	25	15	40
Total	43	27	70

P = ☐ / 40 (☐ = the ones you want; 40 = the given group)

Answer _____

2

The table shows 80 drinks sold at a sandwich bar. One drink is picked at random. Given that it was sold in the morning, find the probability that it is a coffee.

	Tea	Coffee	Juice	Total
Morning	9	14	7	30
Afternoon	16	26	8	50
Total	25	40	15	80

P = ☐ / ☐ (☐ = the ones you want; ☐ = the given group)

Answer _____

3

The table shows 90 runners in a fun run. One runner is picked at random. Given that the runner won a medal, find the probability that they are under 16.

	Medal	No medal	Total
Under 16	18	30	48
16 and over	22	20	42
Total	40	50	90

P = ☐ / ☐ (☐ = the ones you want; ☐ = the given group)

Answer _____

4

The table shows the favourite season of 100 students. One student is picked at random. Given that the student chose winter, find the probability that they are in Year 8.

	Summer	Winter	Total
Year 7	20	12	32
Year 8	18	15	33
Year 9	25	10	35
Total	63	37	100

P = ☐ / ☐ (☐ = the ones you want; ☐ = the given group)

Answer _____

5

The table shows 120 cars at a garage. Complete the table. One car is picked at random. Given that the car is grey, find the probability that it is electric.

	Blue	Grey	Total
Electric	16		40
Petrol		42	
Total			120

Answer _____

6

The table shows the gallery 60 museum visitors chose. One visitor is picked at random. Does knowing the visitor is a child make the dinosaur gallery more likely? Show how you know.

	Dinosaurs	Space	Total
Adult	18	22	40
Child	15	5	20
Total	33	27	60

Answer _____

7

The table shows the instrument 50 students learn. One student is picked at random.

(a) Given that the student is in Year 11, find the probability that they learn the guitar.

(b) Given that the student learns the guitar, find the probability that they are in Year 11.

	Piano	Guitar	Total
Year 10	12	8	20
Year 11	9	21	30
Total	21	29	50

(a) _____

(b) _____

8

The table shows 85 journeys to school. One journey is picked at random. Given that it was late, Amara says the probability it was by bus is $\frac{12}{85}$.

Explain Amara's mistake.

Then find the probability.

	On time	Late	Total
Bus	33	12	45
Car	32	8	40
Total	65	20	85

Answer _____

Conditional Probability: Two-Way Tables *further practice*

9

The table shows the first ride of 75 people at a theme park. One person is picked at random. Given that the person is an adult, find the probability that they chose the coaster.

	Coaster	Log flume	Teacups	Total
Adult	16	10	6	32
Child	14	18	11	43
Total	30	28	17	75

Answer _____

10

90 students chose art or music.
One student is picked at random.
Given that the student chose art, find the probability that they are in Year 9.

	Art	Music	Total
Year 7	12	18	30
Year 8	15	13	28
Year 9	9	23	32
Total	36	54	90

Answer _____

11

A bakery sold 100 cakes. Complete the table. One cake is picked at random. Given that it was sold in the afternoon, find the probability that it is lemon.

	Lemon	Carrot	Chocolate	Total
Morning	14	9		40
Afternoon		12	30	
Total				100

Answer _____

12

The table shows 80 guests at a hotel.
One guest is picked at random.
Find P(breakfast | business).
The line | means given.

	Breakfast	No breakfast	Total
Business	18	6	24
Holiday	20	36	56
Total	38	42	80

Answer _____

13

120 people watched a film. 70 watched it in 3D and the rest in 2D. 28 of the 3D viewers and 15 of the 2D viewers bought popcorn. Complete the table. One person is picked at random. Given that they bought popcorn, find the probability that they watched in 2D.

	Popcorn	No popcorn	Total
3D			
2D			
Total			

Answer _____

14

The table shows how 100 students get to school. More Year 11 students cycle. Is a Year 10 or a Year 11 student more likely to cycle? Show how you know.

	Cycle	Other	Total
Year 10	12	28	40
Year 11	15	45	60
Total	27	73	100

Answer _____

15

The table shows 70 dogs at a show.
Given that a dog is a puppy, the probability that it has long hair is $\frac{3}{8}$.
Complete the table. Given that a dog has long hair, find the probability that it is a puppy.

	Long hair	Short hair	Total
Puppy			24
Adult	20		
Total			70

Answer _____

16

The table shows whether 40 students are left-handed or right-handed.
Tomasz says: "A girl is just as likely to be left-handed as a left-handed student is to be a girl." Is Tomasz right?
Show how you know.

	Left	Right	Total
Girl	4	16	20
Boy	6	14	20
Total	10	30	40

Answer _____