

Conditional Probability: Two-way Tables *stretch*

ANSWERS

1



The table shows the sport 100 students chose. A student is chosen at random. Given that the student chose hockey, find the probability that they are in Year 8.

	Football	Netball	Hockey	Total
Year 7	24	18	9	51
Year 8	16	22	11	49
Total	40	40	20	100

11 out of the 20 who chose hockey

Answer $\frac{11}{20}$

2



The table shows the meals 80 customers ordered. Given that a customer did not order pizza, find the probability that they ordered at lunch.

	Pizza	Pasta	Salad	Total
Lunch	14	9	7	30
Dinner	26	15	9	50
Total	40	24	16	80

$9 + 7 = 16$ out of $24 + 16 = 40$

Answer $\frac{2}{5}$

3



The table shows the probabilities for Ola's walk to school. Complete the table. Given that Ola is late, find the probability that it is wet.

	Late	On time	Total
Wet	0.12	0.18	0.3
Dry	0.08	0.62	0.7
Total	0.2	0.8	1

$0.12 \div 0.2$

Answer $\frac{3}{5}$

4



The table shows how 100 commuters travel. Given that a commuter is 30 or over, find the probability that they go by train.

	Bus	Train	Total
Under 30	18	22	40
30 to 59	25	15	40
60 and over	12	8	20
Total	55	45	100

$15 + 8 = 23$ out of $40 + 20 = 60$

Answer $\frac{23}{60}$

5



Given that a person is an adult, Tom finds the probability that they chose tea. He writes $\frac{24}{60}$. Explain his mistake and find the correct probability.

	Tea	Juice	Total
Adult	24	6	30
Child	10	20	30
Total	34	26	60

only the 30 adults count, not all 60: $\frac{24}{30}$

Answer $\frac{4}{5}$

6



Given that a student is a boy, the probability that he chose art is $\frac{3}{7}$. Find x , then the probability that a student who chose art is a boy.

	Art	Music	Total
Boy	x	12	
Girl	15	13	28
Total		25	

$\frac{x}{x + 12} = \frac{3}{7}$ gives $x = 9$; 9 out of 24

Answer $x = 9, \frac{3}{8}$

7



A club has 50 members and 30 of them are adults. 18 adults and 12 children swim. Complete the table. Given that a member swims, find the probability that they are a child.

	Swim	No swim	Total
Adult	18	12	30
Child	12	8	20
Total	30	20	50

12 out of the 30 who swim

Answer $\frac{2}{5}$

8



Kat says $P(\text{Year 11 given walks})$ is the same as $P(\text{walks given Year 11})$. Is she right? Show how you know.

	Walk	Bus	Total
Year 10	12	18	30
Year 11	28	22	50
Total	40	40	80

$\frac{28}{40}$ and $\frac{28}{50}$: different totals

Reason No: $\frac{7}{10}$ and $\frac{14}{25}$