65. How to calculate probability from a two way table

Practice Questions:

1. The two way table compares the methods of travel to work from two different cities.

a. What is the probability that a participant was from Birmingham?
b. What is the probability a participant from London took the train?

Commuting method

City	Car	Bus	Train	Total
Birmingham	38	20	12	70
London	11	26	73	110
Total	49	46	85	280

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Practice Questions:

2. The two-way table shows the results from a test taken at a college by students in either year 1 and year 2 of their course.

a. What is the probability that someone chosen at random was in year 1 and passed?
b. What is the probability that of the people who failed they were in their first year?

Exam

College	Pass	Fail	Total
Year 1	4	5	9
Year 2	5	6	11
Total	9	11	20

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Practice Questions:

3. The two way table shows the results of students who took both maths and English exams.

a. What is the probability someone passed both exams?
b. What is the probability that someone who passed English and failed Maths?

Maths

English	Pass	Fail	Total
Pass	17	12	29
Fail	3	8	11
Total	20	20	40

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Practice Questions:

4. The two way table compares forms of exercise used by people in their 20's compared to people in their 30's.

a. What is the probability that a participant chose at random was in their 30's and liked to cycle?
b. What is the probability a participant in their 30's liked to cycle?

Exercise

Age	Run	Swim	Cycle	Total
18 - 29	31	8	11	50
30 - 40	18	28	4	50
Total	49	36	15	100

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Practice Questions:

5. Barry made 60 predictions on if football team was going to win or lose. The two way table shows the outcomes of those predictions.

a. How many games did Barry predict the football team would win?
b. What is the probability that a game Barry predicted as a loss would turn out to be a win?

		Result		
		Win	Lose	Total
Prediction	Win	28	13	41
	Lose	12	7	19
	Total	40	20	60

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Practice Questions:

6. A poll was conducted at a local park amongst adults and children as to if they preferred cats or dogs.

a. What is the probability someone chose at random was a child that preferred dogs?
b. What is the probability that an adult preferred cats?

Preference

Age	Cats	Dogs	Total
Adult	18	6	24
Child	17	39	56
Total	35	45	80

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Practice Questions:

7. The two way table shows the results of a chess tournament

a. What is the probability that a participant chosen at random was over 60 and lost?
b. What is the probability a participant who won was under 60?

		Score			
		Win	Lose	Draw	Total
Age	Under 60	3	10	9	22
	Over 60	23	16	19	58
	Total	26	26	28	80

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Practice Questions:

8. The two-way table shows the holiday destinations of a group adults and whether or not they went on holiday with children.

a. What is the probability that someone chosen at random had a holiday at home with children?
b. What is the probability that someone that went abroad had children?

Holiday type

Children	Home	Abroad	Total
Yes	8	12	20
No	9	11	20
Total	17	23	40

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Practice Questions:

9. The two way table shows how many hours of driving lessons a person has had and whether or not they passed their driving test

a. What is the probability that someone chose at random passed with under 20 hours lessons?
b. What is the probability that of those that failed they had more than twenty hours of lessons?

Driving test

Hours of lessons	Pass	Fail	Total
Under 20	17	12	29
Over 20	3	8	11
Total	20	20	40

65. How to calculate probability from a two way table

Practice Questions: Answers

1. The two way table compares the methods of travel to work from two different cities.

a. What is the probability that a participant was from Birmingham?
b. What is the probability a participant from London took the train?

1. a. 70/280 or 1/4. b. 73/110.

Commuting method

City	Car	Bus	Train	Total
Birmingham	38	20	12	70
London	11	26	73	110
Total	49	46	85	280

2. The two-way table shows the results from a test taken at a college by students in either year 1 and year 2 of their course.

a. What is the probability that someone chosen at random was in year 1 passed?
b. What is the probability that of the people who failed they were in their first year?

2. a. 4/9. b. 5/11

Exam Result

College Group	Pass	Fail	Total
Year 1	4	5	9
Year 2	5	6	11
Total	9	11	20

5. The two way table shows the results of students who took both maths and English exams.

a. What is the probability someone passed both exams?
b. What is the probability that someone who passed maths failed English?

3. a. 17/40. b. 3/20

Maths

English	Pass	Fail	Total
Pass	17	12	29
Fail	3	8	11
Total	20	20	40

65. How to calculate probability from a two way table

Practice Questions: Answers

4. The two way table compares forms of exercise used by people in their 20's compared to people in their 30's.

a. What is the probability that a participant was in their 30's and like to cycle?
b. What is the probability a participant in their 30's liked to cycle?

Exercise

Age	Run	Swim	Cycle	Total
18 - 30	31	8	11	50
30 - 40	18	28	4	50
Total	49	36	15	100

4. a. 4/100. b. 4/50.

5. Barry made 60 predictions on if football team was going to win or lose. The two way table shows the outcomes of those predictions.

a. How many games did Barry predict the football team would win?
b. What is the probability that a game Barry predicted as a loss would turn out to be a win?

Result

Prediction	Win	Lose	Total
Win	28	13	41
Lose	12	7	19
Total	40	20	60

5. a. 41 games. b. 12/19

6. A poll was conducted at a local park amongst adults and children as to if they preferred cats or dogs.

a. What is the probability someone chose at random was a child that preferred dogs?
b. What is the probability that an adult preferred cats?

Preference

Age	Cats	Dogs	Total
Adult	18	6	24
Child	17	39	56
Total	35	45	80

6. a. 39/80. b. 18/24.

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Practice Questions: Answers

7. The two way table shows the results of a chess tournament

a. What is the probability that a participant chosen at random was over 60 and lost?
b. What is the probability a participant who won was under 60?

7. a. 16/80. b. 3/26.

Score

Age	Win	Lose	Draw	Total
Under 60	3	10	9	22
Over 60	23	16	19	58
Total	26	26	28	80

8. The two-way table shows the holiday destinations of a group adults and whether or not they went on holiday with children.

a. What is the probability that someone chosen at random had a holiday at home with children?
b. What is the probability that someone that went abroad had children?

8. a. 8/40. b. 12/23

Holiday type

Children	Home	Abroad	Total
Yes	8	12	20
No	9	11	20
Total	17	23	40

9. The two way table shows how many hours of driving lessons a person has had and whether or not they passed their driving test

a. What is the probability that someone chosen at random passed their driving test with less that 20 hours?
b. What is the probability that of those that failed they had more than twenty hours of lessons?

9. a. 17/40. b. 8/20

Driving test

Hours of lessons	Pass	Fail	Total
Under 20	17	12	29
Over 20	3	8	11
Total	20	20	40