

1. In a class of students, the following data table summarizes how many students have a brother or a sister. What is the probability that a student has a brother given that they do *not* have a sister?

	Has a brother	Does not have a brother
Has a sister	3	14
Does not have a sister	7	2

Probability: $\frac{7}{9}$

2. In a class of students, the following data table summarizes how many students have a brother or a sister. What is the probability that a student has a brother given that they have a sister?

	Has a brother	Does not have a brother
Has a sister	2	3
Does not have a sister	4	13

Probability: $\frac{2}{5}$ or 0.4

3. In a class of students, the following data table summarizes the gender of the students and whether they have an A in the class. What is the probability that a student has an A given that the student is female?

	Female	Male
Has an A	7	9
Does not have an A	2	5

Probability: $\frac{7}{9}$

4. In a class of students, the following data table summarizes how many students have a cat or a dog. What is the probability that a student who has a cat also has a dog?

	Has a cat	Does not have a cat
Has a dog	11	2
Does not have a dog	3	8

Probability: $\frac{11}{14}$

5. In a class of students, the following data table summarizes how many students play an instrument or a sport. What is the probability that a student who plays a sport also plays an instrument?

	Plays an instrument	Does not play an instrument
Plays a sport	4	3
Does not play a sport	5	8

Probability: $\frac{4}{7}$

6. The following table represents the highest educational attainment of all adult residents in a certain town. If an adult is chosen randomly from the town, what is the probability that they have a high school degree or some college, but have no college degree? Round your answer to the nearest thousandth.

	Age 20-29	Age 30-39	Age 40-49	Age 50 & over	Total
High school only	1687	825	1112	813	4437
Some college	1148	622	639	1935	4344
Bachelor's degree	2022	1370	732	1361	5485
Master's degree	888	647	212	715	2462
Total	5745	3464	2695	4824	16728

0.525

7. The following table represents the highest educational attainment of all adult residents in a certain town. If a resident who is aged 30-39 is chosen at random, what is the probability that they have completed a bachelor's degree and no more? Round your answer to the nearest thousandth.

	Age 20-29	Age 30-39	Age 40-49	Age 50 & over	Total
High school only	779	389	414	1899	3481
Some college	2313	673	619	2014	5619
Bachelor's degree	1858	1340	1305	1653	6156
Master's degree	798	572	720	440	2530
Total	5748	2974	3058	6006	17786

0.451

8. In a class of 27 students, 10 have a brother and 12 have a sister. There are 4 students who have a brother and a sister. What is the probability that a student who has a sister also has a brother?

Probability: $\frac{4}{12}$ or $\frac{1}{3}$

9. In a class of 27 students, 7 have a cat and 9 have a dog. There are 5 students who have a cat and a dog. What is the probability that a student has a dog given that they have a cat?

Probability: $\frac{5}{7}$

10. In a class of 29 students, 14 have a cat and 17 have a dog. There are 7 students who do not have a cat or a dog. What is the probability that a student chosen randomly from the class does not have a cat?

Probability: $\frac{15}{29}$