**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 |

**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 |

**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 |

**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 |

**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 |

**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** |

**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** |

**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?

**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?

**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?