

Application Exercise 3.1: Voting probabilities of college students

Your name: _____

Write your responses in the spaces provided below. WRITE LEGIBLY and SHOW ALL WORK! Concise and coherent are best!

The following table shows the distribution of class year and whether or not students voted in the last presidential election for 176 Sta 101 students.

| | no, eligible but didn't | no, not eligible | yes | total |
|------------|-------------------------|------------------|-----|-------|
| first-year | 3 | 38 | 3 | 44 |
| sophomore | 10 | 40 | 14 | 64 |
| junior | 7 | 6 | 41 | 54 |
| senior | 4 | 1 | 9 | 14 |
| total | 24 | 85 | 67 | 176 |

Answer the following questions based on these data. Make sure to show all your work.

1. What is the probability that a randomly chosen student has voted in the last presidential election?
2. What is the probability that a randomly chosen student is a junior and has voted in the last presidential election?
3. What is the probability that a randomly chosen student has voted in the last presidential election given that s/he is a junior?

4. Categorize the three probabilities you calculated above as marginal, conditional, or joint.
5. What is the probability that a randomly chosen student is a junior or has voted in the last presidential election?
6. What percent of students are junior or have voted in the last presidential election?
7. What is the probability that a randomly chosen student has voted in the last presidential election given that s/he is a first-year? What about sophomore, and senior?
8. Do these data suggest an association between class year and whether or not students have voted in the last presidential election? Explain your reasoning in one or two sentences.