

Chapter 3 Review Sheet with Answers

Here is a list of important ideas in this chapter.

- Be comfortable creating and analyzing contingency tables with technology from two categorical data sets
- Be able to create and analyze bar charts and pie charts to summarize two way table information
- Be able to find basic marginal proportions, joint proportions (AND / OR), and conditional proportions and be able to convert the proportions into percentages.
- Be able to look at relationships between categorical variables by looking at conditional proportions.
- Relationship Principle
 Values Significantly different => related
 Values Close => not related

Problem Set Chapter 3 Review

1. The following categorical data gives the gender (male or female) of people's pets and who takes care of the pet (caretaker). Create a two-way table from this data. Give the counts and the totals.

Pet Gender	Caretaker
F	Everyone
M	Everyone
F	Parents
F	Parents
M	Everyone
M	Parents
M	Everyone
M	Parents
M	Kids
M	Parents
M	Parents
M	Everyone
F	Everyone

	Kids	Parents	Everyone	Totals
Female Pet				
Male Pet				
Totals				Grand Total =

A total of 280 high school students were asked about their political affiliation. The following two-way table was created from the data. Use the table to answer the following question.

	Democrat	Republican	Other	Total
Freshmen	7	7	28	42
Sophomore	28	21	56	105
Junior	35	28	21	84
Senior	21	14	14	49
Total	91	70	119	280

$$\text{Proportion} = \frac{\text{Amount}}{\text{Total}}$$

$$\text{Percentage} = \frac{\text{Amount}}{\text{Total}} \times 100\%$$

2. What proportion of the students identified with the "Other" political party? (Give your answer as a fraction, decimal proportion and as a percent.)
3. What percent of the students were in their senior year? (Give your answer as a fraction, decimal proportion and as a percent.)
4. What proportion of the students were both democrat and in their junior year? (Both must be true about person) (Give your answer as a fraction, decimal proportion and as a percent.)
5. What percent of the students were both republican and in their sophomore year? (Both must be true about person) (Give your answer as a fraction, decimal proportion and as a percent.)
6. What proportion of the students were either in their freshman year or in their senior year? (Either one can be true about person) (Give your answer as a fraction, decimal proportion and as a percent.)
7. What percent of the students were either democrat or in their senior year? (Either one can be true about person) (Give your answer as a fraction, decimal proportion and as a percent.)

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8. If we only look at the sophomores, what percent of them are democrat? (Give your answer as a fraction, decimal proportion and as a percent.)
 9. If we only look at the seniors, what percent of them are democrat? (Give your answer as a fraction, decimal proportion and as a percent.)
 10. Where the percentages in #8 and #9 close or significantly different?
 11. Does the data suggest that grade level is related to being a democrat, or not related?
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Ch 3 Review Problem Answers

1.

	Everyone	Kids	Parents	All
Female Pet	2	0	2	4
Male Pet	4	1	4	9
All	6	1	6	13

2. $119/280 = 0.425 = 42.5\%$
3. $49/280 = 0.175 = 17.5\%$
4. $35/280 = 0.125 = 12.5\%$
5. $21/280 = 0.075 = 7.5\%$
6. $91/280 = 0.325 = 32.5\%$
7. $119/280 = 0.425 = 42.5\%$
8. $28/105 \approx 0.267 = 26.7\%$
9. $21/49 \approx 0.429 = 42.9\%$
10. Significantly different
11. Data suggests that grade level is related to being democrat.