

11.9: Lab 2: Chi-Square Test of Independence (Worksheet)

Name: _____

Section: _____

Student ID#: _____

Work in groups on these problems. You should try to answer the questions without referring to your textbook. If you get stuck, try asking another group for help.

Student Learning Outcome

- The student will evaluate if there is a significant relationship between favorite type of snack and gender.

Collect the Data

- Using your class as a sample, complete the following chart. Ask each other what your favorite snack is, then total the results.

NOTE: You may need to combine two food categories so that each cell has an expected value of at least five.

Favorite type of snack					
	sweets (candy & baked goods)	ice cream	chips & pretzels	fruits & vegetables	Total
male					
female					
Total					

- Looking at [Table](#), does it appear to you that there is a dependence between gender and favorite type of snack food? Why or why not?

Hypothesis Test

Conduct a hypothesis test to determine if the factors are independent:

- H_0 : _____
- H_a : _____
- What distribution should you use for a hypothesis test?
- Why did you choose this distribution?
- Calculate the test statistic.
- Find the p -value.
- Sketch a graph of the situation. Label and scale the x -axis. Shade the area corresponding to the p -value.


 Blank graph with vertical and horizontal axes.

Figure 11.9.1.

- State your decision.
- State your conclusion in a complete sentence.

Discussion Questions

- Is the conclusion of your study the same as or different from your answer to question two under [Collect the Data](#)?
- Why do you think that occurred?

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