

## Lesson Summary

- Saying that two variables *are not* associated means that knowing the value of one variable provides no information about the value of the other variable.
- Saying that two variables *are* associated means that knowing the value of one variable provides information about the value of the other variable.
- To determine if two variables are associated, calculate row relative frequencies. If the row relative frequencies are about the same for all of the rows, it is reasonable to say that there is no association between the two variables that define the table.
- Another way to decide if there is an association between two categorical variables is to calculate column relative frequencies. If the column relative frequencies are about the same for all of the columns, it is reasonable to say that there is no association between the two variables that define the table.
- If the row relative frequencies are quite different for some of the rows, it is reasonable to say that there is an association between the two variables that define the table.

## Problem Set

A sample of 200 middle school students was randomly selected from the middle schools in a large city. Answers to several survey questions were recorded for each student. The tables below summarize the results of the survey.

For each table, calculate the row relative frequencies for the Female row and for the Male row. Write the row relative frequencies beside the corresponding frequencies in each table below.

1. This table summarizes the results of the survey data for the two variables, gender and which sport the students prefer to play. Is there an association between gender and which sport the students prefer to play? Explain.

		Sport				Total
		Football	Basketball	Volleyball	Soccer	
Gender	Female	2	29	28	38	97
	Male	35	26	8	24	103
	Total	37	65	36	62	200

2. This table summarizes the results of the survey data for the two variables, gender and the students' T-shirt sizes. Is there an association between gender and T-shirt size? Explain.

		School T-Shirt Sizes				
		Small	Medium	Large	X-Large	Total
Gender	Female	47	35	13	2	97
	Male	11	41	42	9	103
	Total	58	76	55	11	200

3. This table summarizes the results of the survey data for the two variables, gender and favorite type of music. Is there an association between gender and favorite type of music? Explain

		Favorite Type of Music				
		Pop	Hip-Hop	Alternative	Country	Total
Gender	Female	35	28	11	23	97
	Male	37	30	13	23	103
	Total	72	58	24	46	200