

Aim: Construct and interpret a two-way table. Use relative frequencies to describe possible association between the two variables.(8.SP4)

### Relative Frequencies from Two-Way Tables

A **relative frequency** table shows percentages so that the data can be compared. Relative frequency tables are useful when there is a great deal of data. Relative frequency can be calculated for:

- the whole table,
- the row categories or
- the column categories.

The question you are trying to answer will determine the type of relative frequency you should calculate.

$$\text{Relative Frequency} = \frac{\text{number of the item}}{\text{total number of items (whole table or row or column)}}$$

#### Example 1:

Eighty students were asked, "What is your favorite color?" The frequency table shows the results of the survey. Complete the relative frequency table to show the distribution of the data **with respect to all 80 students**.

Frequency Table

		Student		
		Boys	Girls	Total
Color	Red	18	22	
	Blue	10	14	
	Green	10	6	
	Total			

Cell Relative Frequency (of TOTAL surveyed)

		Student		
		Boys	Girls	Total
Color	Red			
	Blue			
	Green			
	Total			

**Example 2:**

Forty people were asked, "Do you like thunderstorms?" The frequency table shows the results of the survey. Complete the relative frequency table to show the distribution of the data with respect to gender. Round to the nearest tenth where needed.

Frequency Table

		Do you Like Thunderstorms?		
		Yes	No	Total
Gender	Men	12	10	
	Woman	10	8	
	Total			

Row Relative Frequency Table (of \_\_\_\_\_)

		Do you Like Thunderstorms?		
		Yes	No	Total
Gender	Men			
	Woman			
	Total			

Write a conclusion you can draw from the relative frequency table.

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**Example 3:**

Fifty people were asked, "Do you primarily use your left or right hand to write, or can you use either?" The frequency table shows the results of the survey. Complete the relative frequency table to show the relationship of the hand people use to their gender. Round to the nearest tenth as needed.

Frequency Table

		Which hand do you use?			
		Left	Right	Either	Total
Gender	Men	9	9	3	21
	Woman	12	13	4	29
	Total	21	22	7	50

Column Relative Frequency Table (of \_\_\_\_\_)

		Which hand do you use?			
		Left	Right	Either	Total
Gender	Men				
	Woman				
	Total				

Write a conclusion you can draw from the relative frequency table.

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**Example 4:**

The table below shows the different dinner and dessert combinations chosen by guests at an awards dinner. Create a relative frequency table to show the relationship of the dinner choice to the dessert choice. Round to the nearest whole number as needed.

Frequency Table

		Dinner Choices				
		Fish	Chicken	Beef	Eggplant	Total
Dessert Choices	Fruit Salad	15	18	6	5	
	Ice Cream	12	15	24	4	
	Pudding	8	3	11	8	
	Total					

Column Relative Frequency Table (of \_\_\_\_\_)

		Dinner Choices				
		Fish	Chicken	Beef	Eggplant	Total
Dessert Choices	Fruit Salad					
	Ice Cream					
	Pudding					
	Total					

Write a conclusion you can draw from the relative frequency table.

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