Two-Way Frequency Tables

lesson

15-1

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| A two-way frequency table allows you to see the relationships among two or more pairs of variables in a real-world situation.

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| **Automobile Gas Mileage and Commuting Distance** |
|  | **Mileage  20 mi/gal** | **Mileage ≥ 20 mi/gal** | **TOTAL** |
| **3-Mile Commute** | 18 | 3 | 21 |
| **30-Mile Commute** | 5 | 24 | 29 |
| **TOTAL** | 23 | 27 | 50 |

Notice that a total value is shown for each column or row, and that the total for the far right column and the bottom row are the same, 50. This is the total number of commuters surveyed.**Looking for an Association** The table can show whether there is a relationship between commuting distance and gas mileage. |
| **3-Mile Commute and Mileage** What fraction of commuters drove 3 miles and got 20 miles per gallon or more?Number who drove 3 miles: **21**Number of those with mileage ≥ 20 mi/gal: **3**The fraction is , or about 14%. | **30-Mile Commute and Mileage** What fraction of commuters drove 30 miles and got 20 miles per gallon or more?Number who drove 30 miles: **29**Number of those with mileage ≥ 20 mi/gal: **24**The fraction is , or about 83%. |

Reteach

Two-Way Relative Frequency Tables

lesson

15-2

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| Comparison of the different relative frequencies in data can reveal associations or trends that the frequencies themselves might not show.The table below compares the weights of corn chips found in two different sizes of bags of three brands.

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| **Amount of chips in 24-Ounce Bags** |
|  | **Bags with less than 24 ounces of chips** | **Bags with more than 24 ounces of chips** | **Bags with exactly 24 ounces of chips** | **TOTAL** |
| **Brand A** | 12 | 10 | 40 | 62 |
| **Brand B** | 9 | 15 | 55 | 79 |
| **Brand C** | 7 | 6 | 25 | 38 |
| **TOTAL** | 28 | 31 | 120 | 179 |

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| **Marginal Relative Frequency (MRF)**The MRF is a fraction that compares the sum of all frequencies in one row or column to the total of all frequencies of all columns and rows.**Example**Find the MRF of all of Brand A’s samples.62 ÷ 179  0.35, or about 35%. | **Conditional Relative Frequency (CRF)**The CRF is a fraction that compares one frequency in a row or column to the total of all factors in that row or column.**Example**Find the CRF of Brand A samples with less than 24 ounces of chips.12 ÷ 62  0.19, or about 19%. |