

Constructing Two-Way Relative Frequency Tables

Two-way relative frequency tables are a special type of two-way table that show **relative frequencies**, which you can find by computing the ratio of the number of data in each category to the total number of data items in the table. Relative frequencies can be expressed as fractions, decimals, or percentages.

You can create a two-way relative frequency table using the data in a two-way frequency table.

Let's try it!

Start with a two-way frequency table. This table shows Pizza Time's pizza sales from yesterday.

	Carry-out	Delivery	Total
Medium	30	18	48
Large	24	48	72
Total	54	66	120

Next, find the relative frequencies by writing the ratio of each frequency to the total number of data items. Then, find equivalent percentages.

	Carry-out	Delivery	Total
Medium	$\frac{30}{120} = 25\%$	$\frac{18}{120} = 15\%$	$\frac{48}{120} = 40\%$
Large	$\frac{24}{120} = 20\%$	$\frac{48}{120} = 40\%$	$\frac{72}{120} = 60\%$
Total	$\frac{54}{120} = 45\%$	$\frac{66}{120} = 55\%$	$\frac{120}{120} = 100\%$

Try it yourself! Read the scenario. Then complete the blank two-way relative frequency table using the two-way frequency table. Express the relative frequencies as percentages.

- The Park City Theater will show a new dinosaur movie at two different times on the day it is released. The two-way frequency table shows the tickets that have been pre-ordered.

	Afternoon Showing	Evening Showing	Total
Child	45	30	75
Adult	39	36	75
Total	84	66	150

	Afternoon Showing	Evening Showing	Total
Child	30%	20%	50%
Adult	26%	24%	50%
Total	56%	44%	100%

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Keep going! Read each scenario. Then complete the blank two-way relative frequency table using the two-way frequency table. Express the relative frequencies as percentages, rounding to the nearest tenth of a percent if necessary.

2. Culver’s Pet Supply sells gourmet dog treats in two sizes and two flavors. The two-way frequency table shows the sales of the treats over the last month.

	Peanut Butter	Chicken	Total
Regular	24	18	42
Jumbo	10	28	38
Total	34	46	80

	Peanut Butter	Chicken	Total
Regular	30%	22.5%	52.5%
Jumbo	12.5%	35%	47.5%
Total	42.5%	57.5%	100%

3. Pearl Valley City Council is planning a new park. Some residents were surveyed about which location and feature they would prefer. The results of the survey are shown in the two-way frequency table.

	Skate Park	Splash Pad	Total
East Side	130	194	324
West Side	172	255	427
Total	302	449	751

	Skate Park	Splash Pad	Total
East Side	17.3%	25.8%	43.1%
West Side	22.9%	34.0%	56.9%
Total	40.2%	59.8%	100%

