

UNIT 4 • DESCRIBING DATA**Lesson 2: Working with Two Categorical and Quantitative Variables****Problem-Based Task 4.2.1: FunZone America Survey**

FunZone America, an amusement park, collects information from park visitors. The park uses this information to determine how to attract certain guests to the park. For example, one summer FunZone America learned that 12–17-year-olds were most interested in roller coasters. When FunZone America wanted to try to get more 12–17-year-olds to visit the park, the park ran advertisements about roller coasters. The park surveyed recent visitors and recorded the information below. The three main attractions were roller coasters, shows, and the water park.

Visitor	Age	Favorite attraction	Visitor	Age	Favorite attraction
1	27	Roller coasters	26	31	Roller coasters
2	30	Shows	27	12	Roller coasters
3	18	Roller coasters	28	38	Water park
4	35	Shows	29	29	Roller coasters
5	31	Shows	30	28	Shows
6	46	Roller coasters	31	16	Roller coasters
7	25	Water park	32	47	Shows
8	39	Shows	33	37	Shows
9	8	Water park	34	9	Water park
10	14	Water park	35	48	Shows
11	31	Shows	36	22	Water park
12	25	Roller coasters	37	49	Roller coasters
13	35	Shows	38	19	Roller coasters
14	46	Roller coasters	39	53	Shows
15	53	Roller coasters	40	15	Roller coasters
16	27	Shows	41	16	Water park
17	33	Water park	42	14	Shows
18	34	Shows	43	39	Shows
19	5	Shows	44	52	Shows
20	41	Shows	45	20	Shows
21	20	Roller coasters	46	33	Roller coasters
22	24	Water park	47	21	Water park
23	48	Shows	48	53	Water park
24	34	Roller coasters	49	39	Roller coasters
25	14	Shows	50	6	Shows

continued

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Create a two-way frequency table showing the joint frequencies of visitors with the following age ranges: 5–15, 16–25, 26–35, 36–45, 46–55. Include in the table the marginal frequency for the types of attractions and for the ages of the visitors. Are there any trends in the type of attractions preferred by each age group? Use conditional relative frequencies to describe your response.

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Problem-Based Task 4.2.1: FunZone America Survey

Coaching

- a. Sort the data first by attraction, then by age.

- b. Count the number of attractions selected for each given age range. For example, to fill in the first joint frequency, count the number of people aged 5 through 15 who selected roller coasters. Fill in a two-way frequency table with this information.

- c. Find the marginal frequencies. Sum each row, and sum each column.

- d. Which type of conditional relative frequency would show the type of attraction preferred by each age group?

- e. Calculate the conditional relative frequencies and put them in a table.

- f. Look at the conditional relative frequencies for each age group. Is there an attraction that is preferred by each group?