

11.4 Start Thinking

Brainstorm a question with only two possible answers and ask the question to each person in your class. Track the answers in a table with boys and girls as row headings and answer 1 and answer 2 (specific to your question) as column headings. The resulting table should have four boxes for answers.

This is called a two-way table. Use your table as evidence to explain how the name is related to the look of the table. Count the number of people surveyed for the table. Is there a way to know the total by looking at the table? Explain why or why not.

11.4 Warm Up

Write the fraction in simplest form.

1. $\frac{8}{20}$

2. $\frac{21}{42}$

3. $\frac{62}{98}$

4. $\frac{6}{4}$

5. $\frac{3}{6}$

6. $\frac{12}{15}$

7. $\frac{76}{98}$

8. $\frac{162}{99}$

9. $\frac{12}{9}$

10. $\frac{2}{2}$

11. $\frac{9}{1}$

12. $\frac{2}{8}$

11.4 Cumulative Review Warm Up

Solve the equation. Check your solution.

1. $8(g - 4) = 2(g - 7)$

2. $-8(t + 1) = 5(t + 14)$

3. $\frac{3}{2}(4x - 8) = -1(5x - 10)$

4. $-2(3t - 3) = \frac{4}{3}(27 - 9t)$

5. $9(3y - 1) = 3(7y + 9)$

6. $3(3x - 7) = 3x + 13x$

11.4 Practice A

You conduct a survey that asks 253 students about whether they ride a bicycle to school. In Exercises 1–4, use the results of the survey shown in the two-way table.

		Ride Bike to School	
		Yes	No
Class	Freshman	54	72
	Sophomore	5	122

- How many freshmen were surveyed?
- How many sophomores were surveyed?
- How many students ride a bicycle to school?
- How many students do not ride a bicycle to school?

In Exercises 5 and 6, find and interpret the marginal frequencies.

5.

		Skateboard	
		Yes	No
Surf	Yes	32	65
	No	45	24

6.

		Pet	
		Yes	No
Job	Yes	74	13
	No	153	32

- Refer to Exercise 5.
 - What percent of students surf?
 - What percent of students do not skateboard?
 - What percent of students who surf also skateboard?
 - What percent of students neither surf nor skateboard?

11.4

Practice B

In Exercises 1 and 2, find and interpret the marginal frequencies.

1.

		Coffee	
		Yes	No
Tea	Yes	33	112
	No	24	20

2.

		Airplane	
		Yes	No
Train	Yes	5	3
	No	278	321

In Exercises 3 and 4, complete the two-way table.

3.

		Participated in a Triathlon		Total
		Yes	No	
Gender	Female	24		137
	Male		142	
Total				306

4.

		Dual Enrollment Student		Total
		Yes	No	
Class	Sophomore		247	
	Senior	83		
Total			432	550

5. You conduct a survey that asks 397 students in your school about whether they have played a musical instrument or participated in a sport. One hundred eighteen students have played a musical instrument and 57 of those students have participated in a sport. Thirty-four of the students have not played a musical instrument or participated in a sport. Organize the results in a two-way table. Include the marginal frequencies.

11.4 Enrichment and Extension

Logic Puzzle

Complete the logic puzzle using the information given.

After class, a group of friends went to the school café for a snack. Match each person to their drink and fruit order, and determine the final bill for each.

	Frank	Ruby	Tom	Wendy	milk	green tea	water	iced tea	banana	apple	mango	grapefruit
\$5.99												
\$6.99												
\$7.99												
\$8.99												
banana												
apple												
mango												
grapefruit												
milk												
green tea												
water												
iced tea												

- The person who had the milk paid \$1 more than Wendy.
- Ruby paid more than the person who had the milk.
- The person who ordered the banana was either the person who had the milk or the person who paid \$5.99.
- The four friends were the person who paid \$8.99, the person who ordered the apple, the person who ordered the grapefruit, and Wendy.
- Tom paid \$1 more than the person who ordered the grapefruit.
- The person who ordered the grapefruit paid \$2 more than the person who had the water.
- The person who paid \$7.99 was either the person who had the iced tea or the person who had the water.

11.4 Puzzle Time

What Has A Head And Tail But No Body?

Write the letter of each answer in the box containing the exercise number.

Your assignment is to survey 320 students about whether they ride a bus to school. Use the results of the survey to answer the questions that follow the table.

		Ride A Bus To School	
		Yes	No
Class	Juniors	112	64
	Seniors	40	104

- How many juniors were surveyed?
- How many seniors were surveyed?
- How many students ride a bus to school?
- How many students do not ride a bus to school?
- Given that a student rides a bus to school, what is the approximate conditional relative frequency that he or she is a junior?
- Given that a student rides a bus to school, what is the approximate conditional relative frequency that he or she is a senior?
- Given that a student does not ride a bus to school, what is the approximate conditional relative frequency that he or she is a junior?
- Given that a student does not ride a bus to school, what is the approximate conditional relative frequency that he or she is a senior?

Answers

T. 26%

A. 144

R. 74%

Q. 62%

R. 152

U. 38%

E. 176

A. 168

4		8	7	2	5	6	1	3
---	--	---	---	---	---	---	---	---