Math Virtual Learning

Math 8

Two-Way Tables

May 4, 2020

Lesson: May 4th, 2020

Objective/Learning Target:
Students will construct a two-way table

Warm-Up:

Consider a class of 40 students. There are 15 boys and 25 girls. 8 boys wear glasses and 9 girls wear glasses. The frequencies can be represented neatly using a two-way table.

Number of boys who do not wear glasses = 15 − 8 = 7
Number of girls who do not wear glasses = 25 − 9 = 16

The number **7** in the two-way table is placed in the **Boy** row and under the **No** column. This is read as there are 7 boys who do not wear glasses.

		Glasses		
		Yes	**No**	Total
Gender	**Boy**	8	7	15
	Girl	9	16	25
	Total	17	23	40

Notice that the totals, or cumulative frequencies, allow you to see how the class is distributed among the two categories, **Gender** variables and **Glasses** variables. There are 10 more girls than boys in the class.

Guided Practice

The results of a poll of 100 adults about their favorite sport are shown in the two-way table below. Some information is missing from the table.

Favorite Sport

		Basketball	Baseball	Tennis	Swimming	Total
Gender	**Men**	16	27	5	12	60
	Women	2	6	16	?	?
	Total	?	?	?	?	?

a) Find the total number of women.

Solution

Total number of women = 100 − 60 = 40

There are 40 women in total.

Guided Practice

Favorite Sport

	Basketball	Baseball	Tennis	Swimming	Total
Men	16	27	5	12	60
Women	2	6	16	?	?
Total	?	?	?	?	?

Gender (label along left side)

b) Find the number of women who chose swimming as their favorite sport.

Solution

Number of women who chose swimming

= Total number of women − Number of women who chose other sports

= 40 − 2 − 6 − 16

= 16

16 women chose swimming as their favorite sport.

Guided Practice

c) Complete the table with the total number of men and women who chose each sport.

Solution

Total number of people who chose basketball = 16 + 2 = 18

Total number of people who chose baseball = 27 + 6 = 33

Total number of people who chose tennis = 5 + 16 = 21

Total number of people who chose swimming = 12 + 16 = 28

Favorite Sport

		Basketball	Baseball	Tennis	Swimming	Total
Gender	Men	16	27	5	12	60
	Women	2	6	16	16	40
	Total	18	33	21	28	100

Practice:
Click the link below for additional practice on:
IXL Practice: Finding Probability with Two Way Tables

1. Use what you have learned about two way tables to answer the following practice problems.
2. Enter your answer as #/# for a fraction.
3. Once you have entered your answer, click submit to check your understanding.

Shelby keeps all her spare keys in a box under her bed. Recently, Shelby decided the box was becoming unmanageable, as none of the keys were labeled. She set about labeling them with colored stickers that indicated what each key opened.

	Front door of the house	Back door of the house
Blue sticker	3	4
Green sticker	2	1

What is the probability that a randomly selected key is labeled with a blue sticker and opens the front door of the house?

Simplify any fractions.

Submit

Press here to check your work

Independent Practice: Problem 1

Work through the following example on a seperate piece of paper.

1. Below is a table of people in the park and the activities that they do. Complete the relative frequency table below, based on the total participants.

	Jog	Disc Golf	Basketball	Total
Male	9	4	10	
Female	11	1		
Total			25	50

Independent Practice Answer Key: Problem 1

Once you have completed problem 1, check your answers here before going on to the next practice problems.

1. Below is a table of people in the park and the activities that they do. Complete the relative frequency table below, based on the total participants.

	Jog	Disc Golf	Basketball	Total
Male	9	4	10	23
Female	11	1	15	27
Total	20	5	25	50

Independent Practice: Problem 2

Work through the following example on a seperate piece of paper.

2. Eighth grade students were asked whether they participate in an after-school activity. Complete the two-way frequency table below.

	Yes	No	Total
Male		40	
Female			95
Total	102		187

Independent Practice Answer Key: Problem 2

Once you have completed problem 2, check your answers here before going on to the next practice problems.

2. Eighth grade students were asked whether they participate in an after-school activity. Complete the two-way frequency table below.

	Yes	No	Total
Male	52	40	92
Female	50	45	95
Total	102	85	187

Independent Practice: Problem 3

Work through the following example on a seperate piece of paper.
(Answer key on next slide.)

3. The annual workplace accident rates for 906 construction workers, classified by trade, are shown in the two-way table below.

	Trade				
	Welder	Framer	HVAC	Electrician	Total
At Least One Accident	130	100	111	72	
No Accident	79	165	101		
Total					

a) Complete the two way table.
b) Which trade had the highest rate of accidents?
c) What percentage of all the workers, were welders with no accidents? (Round to the nearest percent)

©2012 Math in Focus: Singapore Math

Independent Practice Answer Key: Problem 3

Once you have completed problem 3, check your answers here before going on to the next practice problems.

3. The annual workplace accident rates for 906 construction workers, classified by trade, are shown in the two-way table below.

a) **Complete the two way table.**

		Trade				
		Welder	Framer	HVAC	Electrician	Total
Workplace Accident Rate	At Least One Accident	130	100	111	72	**413**
	No Accident	79	165	101	**148**	**493**
	Total	**209**	**265**	**212**	**220**	**906**

b) Which trade had the highest rate of accidents? **Welders**

c) What percentage of all the workers, were welders with no accidents? (Round to the nearest percent) **79/906=9%**

Independent Practice: Problem 4
Work through the following example on a seperate piece of paper.
(Answer key on next slide.)

4. A random sample of 20 adults were asked to indicate whether they watch soccer. Results are shown below.

Gender	M	M	F	F	M	M	F	F	M	M
Watch Soccer	Y	Y	N	N	Y	N	Y	N	Y	Y

Gender	F	F	M	F	M	M	F	M	F	M
Watch Soccer	N	N	N	Y	N	Y	N	Y	N	Y

A)   Construct a two-way table to summarize the data above.
B)   What percent of the adults watch soccer?

Independent Practice Answer Key: Problem 4

Once you have completed problem 4, check your answers here before going on to the next practice problems.

4. A) Construct a two-way table to show the data of the surveyed men and women and whether or not they watch soccer.

	Yes	No	Total
Male	8	3	11
Female	2	7	9
Total	10	10	20

B) What percent of adults watch soccer? 10/20 or 50%

Independent Practice: Problem 5
Work through the following example on a seperate piece of paper.
(Answer key on next slide.)

5. The two-way table below shows the result of a poll of 200 middle-school students about their favorite movie genre. Use the table to answer the following questions. Round your answers to the nearest percent.

Favorite Movie Genre

Students	Drama	Comedy	Science Fiction	Total
7th Graders	8	16	12	36
8th Graders	24	101	39	164
Total	32	117	51	200

a) What percentage of the surveyed students were 8th graders that preferred comedy?

b) Of the students whose favorite movie genre was science fiction, what percentage were 7th graders?

Independent Practice Answer Key: Problem 5

Once you have completed problem 5, check your answers here before going on to the next practice problems.

5.

Favorite Movie Genre

Students	Drama	Comedy	Science Fiction	Total
7th Graders	8	16	12	36
8th Graders	24	101	39	164
Total	32	117	51	200

a) What percentage of the surveyed students were 8th graders that preferred comedy?   101/200= 51%

b) Of the students whose favorite movie genre was science fiction, what percentage were 7th graders?   12/51=24%

Additional Practice:
Choose from the links below for additional practice and to check your understanding!

[Khan Academy: Video and Practice](#)

[MangaHigh: Two Way Table Online Game](#)