

3.3.20

At The Bell: **PSSA:** pg. 684 Common Core Spiral Review



Common Core Spiral Review

Determine whether a scatter plot of each of the following might show a *positive, negative, or no* association. **8.SP.1**

13. a student's age and how many siblings he or she has
14. the number of homeruns hit and the amount of time spent in batting practice



Common Core Spiral Review

Determine whether a scatter plot of each of the following might show a *positive, negative, or no* association. **8.SP.1**

13. a student's age and how many siblings he or she has **no association**
14. the number of homeruns hit and the amount of time spent in batting practice
positive association

Statistics and Probability

Lesson 3

Two-Way Tables

Construct a Two-Way Table pg. 690

A **two-way table** shows data from one sample group as it relates to two different categories.

The same information from the Venn diagram on the previous page is shown below as a two-way table, where one category is represented by rows and the other category is represented by columns. The two categories in the table shown are "Play a Sport" and "On the Honor Roll."

	Play a Sport	Do Not Play a Sport	Total
On the Honor Roll	250	115	365
Not On the Honor Roll	45	30	75
Total	$250 + 45 = 295$	$115 + 30 = 145$	440

**Essential Question**

HOW are patterns used when comparing two quantiles?

**Vocabulary**

relative frequency
two-way table

**Common Core State Standards**

Content Standards
8.SP.4

MP Mathematical Practices
1, 3, 4, 5

Example

pg. 690



1. Felipe surveyed students at his school. He found that 78 students own a cell phone and 57 of those students own an MP3 player. There are 13 students that do not own a cell phone, but own an MP3 player. Nine students do not own either device. Construct a two-way table summarizing the data.

Step 1 Create a table using the two categories: cell phones and MP3 players. Fill in the table with the given values.

	MP3 Player	No MP3 Player	Total
Cell Phone	57	21	78
No Cell Phone	13	9	22
Total	70	30	100

Step 2 Use reasoning to complete the table. Remember, the totals are for each row and column. The column labeled "Total" should have the same sum as the row labeled "Total."

	MP3 Player	No MP3 Player	Total
Cell Phone	57	21	78
No Cell Phone	13	9	22
Total	70	30	100

Got it? Do this problem to find out.

pg. 691

- a. There are 150 children at summer camp and 71 signed up for swimming. There were a total of 62 children that signed up for canoeing and 28 of them also signed up for swimming. Construct a two-way table summarizing the data.

	Canoeing	No Canoeing	Total
Swimming	28	43	71
No Swimming	34	45	79
Total	62	88	150

Interpret Relative Frequencies

A two-way table can show relative frequencies for rows or for columns, rather than the actual values. By analyzing the relative frequencies in a two-way table, you can determine possible associations between the two variables.

Example



2. Find and interpret the relative frequencies of students in the survey from Example 1 by row.

	MP3 Player	No MP3 Player	Total
Cell Phone	57	21	78
No Cell Phone	13	9	22
Total	70	30	100

To find the relative frequencies by row, write the ratios of each value to the total in that row. Round to the nearest hundredth.

	MP3 Player	No MP3 Player	Total
Cell Phone	$57; \frac{57}{78} \approx 0.73$	$21; \frac{21}{78} \approx 0.27$	$78; 1.00$
No Cell Phone	$13; \frac{13}{22} \approx 0.59$	$9; \frac{9}{22} \approx 0.41$	$22; 1.00$

Only the totals needed are shown in the table.

Based on the relative frequency value of 0.73 in one of the cells, you can imply that most students that own a cell phone also own an MP3 player. The data also suggest that over half of the students that do not own a cell phone will own an MP3 player.

Got it? Do this problem to find out.

pg. 692

- b. Find and interpret the relative frequencies of students in the survey by column. Round to the nearest hundredth if necessary.

	MP3 Player	No MP3 Player
Cell Phone	$57; \frac{57}{70}$	$21; \frac{21}{30}$
No Cell Phone	$13; \frac{13}{70}$	$9; \frac{9}{30}$
Total	$70;$	$30;$

Guided Practice

pg. 692

Check

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1. Eloise surveyed the students in her cafeteria and found that 38 males agree with the new cafeteria rules while 70 do not. There were 92 females surveyed and 41 of them agree with the new cafeteria rules. Construct a two-way table summarizing the data. (Example 1)

	Agree with Rules	Do Not Agree with Rules	Total
Males	38	70	108
Females	41	51	92
Total	79	121	200

2. The two-way table shows how some students get their news. Find and interpret the relative frequencies of students in the survey by row. (Example 2)

	TV	Internet	Total
7 th grade	13; $\frac{13}{62}$	49; $\frac{49}{62}$	62
8 th grade	20; $\frac{20}{88}$	68; $\frac{68}{88}$	88
Total			

Assignment:

pg. 693 ALL

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