

Conditional Frequencies

A **conditional frequency** is restricted to a particular group (or subgroup). Conditional frequencies are typically identified by the words “given that” or “if” or “what percent of (insert condition)”. They do NOT come from the total data, but from a row or column total.

To calculate a conditional frequency, divide the joint frequency by the marginal frequency (does not matter if they are the frequencies or relative frequencies).

	Took Medicine	Did NOT Take Medicine	TOTAL
Headache	12	15	27
No Headache	48	25	73
TOTAL	60	40	100

★ Note: When a question asks you to find the probability, it is asking for the relative frequency. This means that your answer should be in the form of a _____.

1. What is the probability that a participant did not get a headache if they took the medicine?
2. What is the probability that a participant took medicine given they did not have a headache?
3. What is the probability that a participant took medicine given they did have a headache?
4. If we know that a participant did not take medicine, what is the probability that they had a headache?
5. How many participants took the medicine?
6. How many participants took the medicine and did not have a headache?
7. What percent of participants had a headache and took medicine?

Conditional Frequencies Practice

1) Students were surveyed about whether or not they have a pet and if they are allergic or not to animals. The results are below:

	Has a Pet	Does Not Have a Pet
Allergic to Animals	32	192
Not Allergic to Animals	213	63

- a. What percent of those surveyed who are allergic to animals have a pet?
- b. What is the probability that a person who is not allergic to animals has a pet?
- c. Given that someone has a pet, what is the probability that they are allergic to animals?
- d. What percent of those who have a pet are not allergic to animals?

2) The following contains the scores of the latest math project. Use the table to answer the following questions:

Project Scores

	Male	Female
A	9	12
B	18	14
C	8	11
D	2	3
F	1	2

- a. What percentage of males earned a score of an "A"?
- b. What percentage of those who earned an "A" were male?
- c. What percentages of females earned a score of a "B"?
- d. What percentage of those who earned an "F" were female?
- e. Given that a student earned a "C", what is the probability that they are male?

Two Way Frequency Tables – Mixed Practice

The table below shows concession stand sales at last night's soccer game. Use this information to answer the questions on this page.

	Soda	Water	No Drink
Hot Dog	50	62	46
Pizza	120	58	4
No Food	30	20	10

- 1) How many people ordered a soda?
- 2) Given that a person ordered a hot dog, what is the probability that they also ordered a soda?
- 3) What is the relative frequency of people of ordered pizza and water?
- 4) What percent of people ordered no food?
- 5) Find the relative frequency of people who ordered no food and no drink.
- 6) What is the probability that a person ordered soda and pizza?
- 7) What is the probability that a person ordered no drink given that they ordered pizza?
- 8) We know that Sarah ordered a soda. What is the probability that she ordered a hot dog?
- 9) What is the probability that a person ordered no drink?
- 10) How many people ordered only pizza?