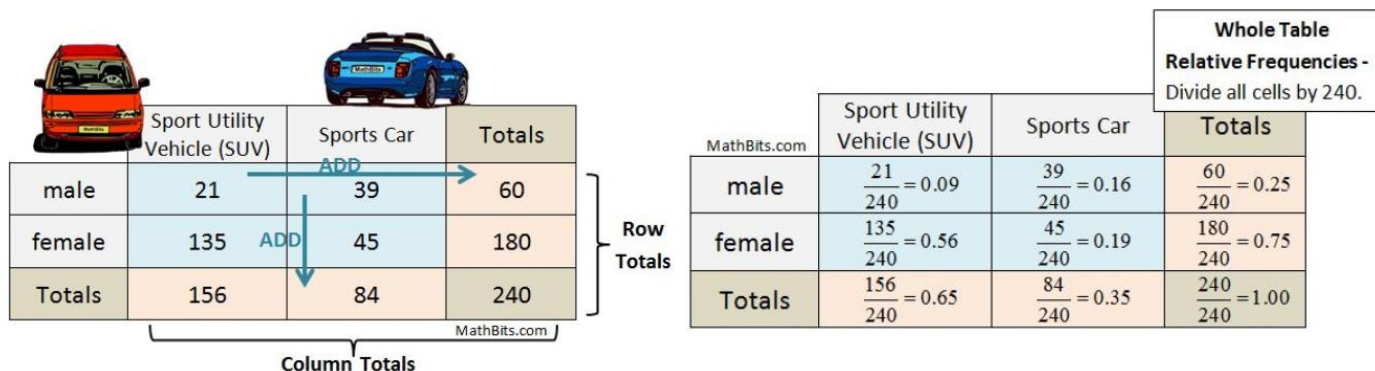


## UNIT 10 - TWO-WAY FREQUENCY TABLES

**Read the following with your partner:** Two way frequency tables are a visual representation of the possible relationships between two sets of categorical data. The categories are labeled at the top and the left side of the table, with the frequency (count) information appearing in the four (or more) interior cells of the table.

A survey asked, "If you could have a new vehicle, would you want a sport utility vehicle or a sports car?"



### Example 1:

Jenna asks 40 randomly selected students whether they preferred dogs, cats, or other pets. 18 said they preferred dogs, 12 said they preferred cats, and 10 said they preferred something else. Use this data to fill in *frequency table* below.

Preferred Pet	Dog	Cat	Other	TOTAL
Frequency	18	12	10	40

Preferred Pet	Dog	Cat	Other	TOTAL
Relative Frequency	.45	.3	.25	1.00
	$\frac{18}{40}$	$\frac{12}{40}$	$\frac{10}{40}$	

### Example 2

If we have TWO categories that need to be represented we can use a *two-way frequency table*.

Using the same data above of the 18 people who preferred dogs, 10 were male. Of the 12 who preferred cats 5 were male. And of the 10 who preferred something else 9 were male. Use this information to fill in the table below.

#### TWO-WAY frequency table

PET \ GENDER	Dog	Cat	Other	TOTAL
Female	8	7	1	16
Male	10	5	9	24
TOTAL	18	12	10	40

#### TWO-WAY relative frequency table

PET \ GENDER	Dog	Cat	Other	TOTAL
Female	.2	.175	.025	.4
Male	.25	.125	.225	.6
TOTAL	.45	.3	.25	1.00

### Example 3

Use the following class rosters to help create two-way frequency and relative frequency tables.

#### Period 9:

Gender	Grade	Female	09
Female	10	Female	09
Male	09	Male	09
Female	10	Female	10
Male	10	Female	09
Female	09	Female	09
Male	09	Female	10
Male	09	Female	10
Female	10	Male	09
Female	10	Male	09
Male	09	Male	10
Male	09	Female	10
Male	09	Female	10
Female	09	Female	09

#### Period 10:

Grade	Gender	Female	Male
10	Female	10	Female
10	Female	10	Male
09	Female	10	Female
10	Female	09	Female
09	Male	10	Male
10	Male	09	Male
09	Male	10	Male
09	Male	10	Female
09	Female	10	Female
10	Female	09	Male
10	Female	10	Male
09	Female	09	Male
09	Male	09	Female
09	Male	09	Female

#### PERIOD 9

*Two-Way Frequency Table*

	Fresh.	Soph.	TOTAL
Males	9	2	11
Females	7	9	16
TOTAL	16	11	27

*Two-Way Relative Frequency Table*

	Fresh.	Soph.	TOTAL
Males	.33	.08	.41
Females	.26	.33	.59
TOTAL	.59	.41	1

#### PERIOD 10

*Two-Way Frequency Table*

	Fresh.	Soph.	TOTAL
Males	8	5	13
Females	6	9	15
TOTAL	14	14	28

*Two-Way Relative Frequency Table*

	Fresh.	Soph.	TOTAL
Males	.29	.18	.46
Females	.21	.32	.54
TOTAL	.5	.5	1.00

- In period 9 what percentage of females are freshmen? **59%**
- In period 10, what percentage of the males were in 10<sup>th</sup> grade? **18%**
- Using the frequency tables, write a few sentences describing the difference between periods 9 and 10.