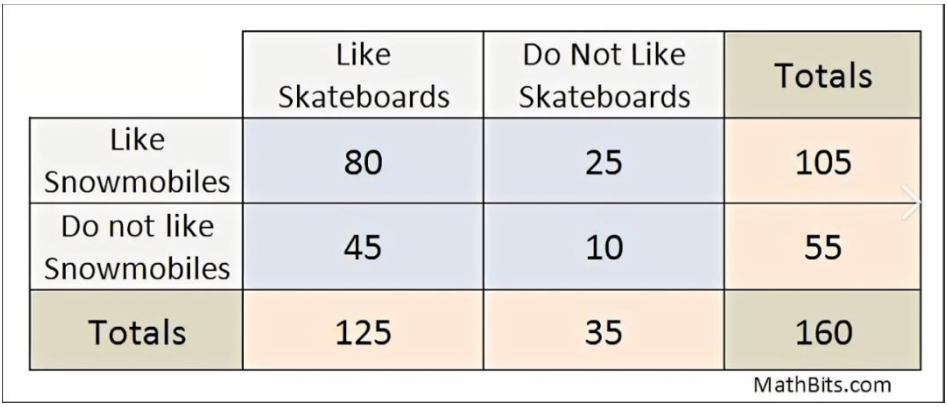
Two-Way Frequency Tables

Two-way frequency tables are visual representations of the possible relationships between 2 sets of data.

Here is an example of one:



	Like Skateboards	Do Not Like Skateboards	Totals
Like Snowmobiles	80	25	105
Do not like Snowmobiles	45	10	55
Totals	125	35	160

MathBits.com

We can use two-way frequency tables like this one to find probabilities (the chance of a certain event happening out of the total given in a problem) for these tables.

Let's try some problems!

What is the probability that someone from the table likes a skateboard AND a snowmobile?

The key to solving problems like this is identifying the CORRECT box of the table that matches the CRITERIA of the question.

In this case, we need to look at the table for the box that corresponds to both liking skateboards AND snowmobiles, which is 80 and divide it by the TOTAL number of people which is 160 to get:

$$\frac{80}{160} = \frac{1}{2} \quad \text{OR } 0.5 \text{ OR } 50\%$$

How many people who like skateboards DO NOT like snowmobiles?

To find the probability, we first need to look for the TOTAL number of people who like skateboards as that will serve as our denominator (125). Then, we need to find the numerator of those people who DO NOT like snowboards from the 125 people who LIKE snowboards (45).

So, the probability would be:

$$\frac{45}{125} = \frac{9}{25} \text{ OR } 0.36 \text{ OR } 36\%$$

How many people are surveyed in this table?

This one is simple. Look at the BOTTOM RIGHT box of the table to find the total number of people (160) who were surveyed.

Tips for Solving Problems:

1. The 3 questions given in this lesson reflect the kinds of questions (a certain amount over the entire total, a certain amount over a category total and the identification of a number from the table) you will get with these probability tables. Make sure to keep practicing so you can understand these better!

2. Pay attention to the wording of the questions! The wording tells you what box of the table you need to look at for your numerator and denominator. If you misread the words in the question, you will find the wrong numerator and/or denominator, and the probability will be incorrect.

3. For a certain amount over a category of total problems, find the DENOMINATOR first as it will help you hone in your focus on the row/column that you will be picking the numerator's value out of.