Percent and Proportion

When you are looking at **percentages** and **proportions**, it can be hard to fully understand the unit of measurement being used. Percentages are defined as a ratio that compares a number to 100 (ie. 2/2 = 100% and 1/2 = 50%, usually presented with %). Proportions are a part, share, or portion of its relation to a whole, often expressed as a percentage. When you're deciding on which is best to use, it is imperative that you understand the significance of the numerator and denominator and what they exactly indicate. Looking at the previous example, 1/2, the number 1 represents the numerator and the number 2 represents the denominator. This document provides various examples of how these issues may come up in your analysis and presents ways to make sure your analysis is accurate.

For example, you would like to find out how many Hispanic/Latino 12th grade students from the entire 12th grade population in the Metro Region who reported binge drinking within the past 2 weeks for the year 2007. The first thing you need to consider is the population you are interested in examining. Using the profile/website, you find that there were *5,140 total* 12th grade students who reported binge drinking within the past 2 weeks in 2007 in the Metro Region. Now remember there were many more 12th grade students that completed the survey and answered that question in the Metro Region (N = 17,724), but only 29% of those (n = 5,140) reported binge drinking. See Figure 1.

So now you take the number of 12th grade binge drinkers in the Metro Region, and find out how many were Hispanic/Latino. Using the profile/website you will find that 234 students out of the 5,140 who reported binge drinking were Hispanic/Latino.

This computes to be:
$$234 \div 5140 = 4.6\%$$

This can be stated as 4.6% of all 12th grade students who reported binge drinking within the past 2 weeks in the metro were Hispanic/Latino. See Figure 2.

Now say you want to find out how many Hispanic/Latino 12th grade students are reportedly binge drinking within the past 2 weeks out of all the total Hispanic/Latino 12th graders who answered this question. We know that there were a total of n = 234 Hispanic/Latinos who reported binge drinking in 2007. Going back to the profile/website we need to find out how many total Hispanic/Latinos 12th graders answered this question. It shows that out of the total Hispanic/Latino population who answered this question, 30% report binge drinking. By performing a calculation we are able to find out how many total Hispanic/Latino 12th graders answered this question:

Figure 1. Percent of 12th Grade Students who Reported Binge Drinking within the past 2 weeks

- 29%
- 71%

- 12th grade Non-bingers
- 12th grade Bingers
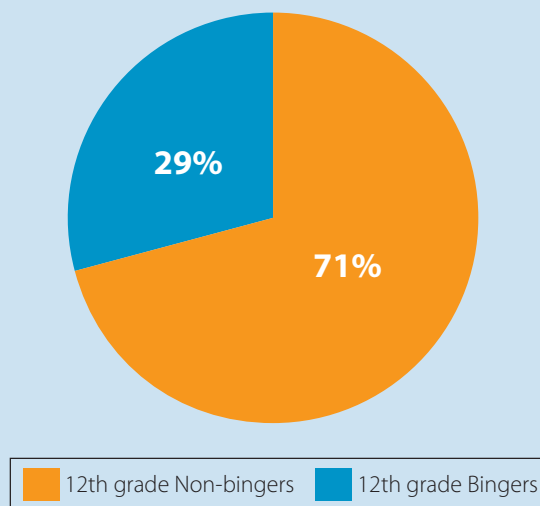
Calculation: 234 ÷ 30% = 780

This is to say that 234 out of the 780 (30%) 12th grade Hispanic/Latino students who answered the survey report binge drinking within the past 2 weeks. See Figure 3.

These are just a few ways to analyze percentages and proportions of specific populations. There are many different ways people describe extent of use, so it is important that there is a complete understanding of what is being asked initially. The main idea is to be aware of exactly what you're taking a percentage of and fully understand what your numerator and denominator represent.

Figure 2. Percent of 12th Grade Students who Reported Binge Drinking within the past 2 weeks by race/ethnicity

82.9%

4.3%

2.9%

5.3%

4.6%

White

African American or Black

Native American

AA/PI
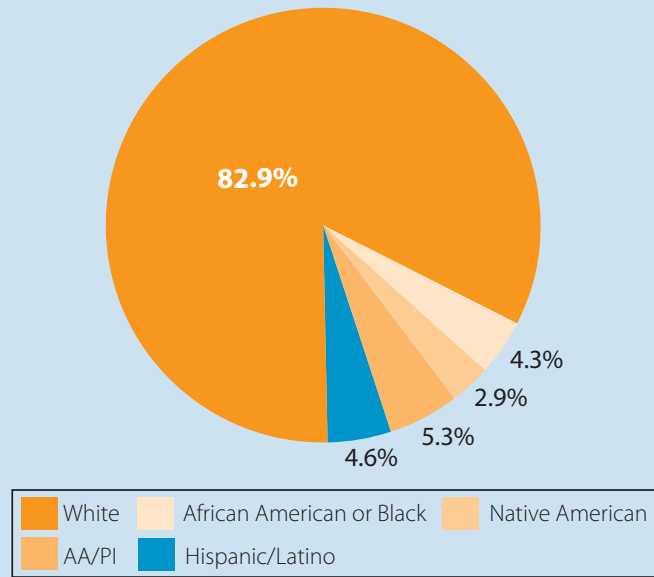
Hispanic/Latino

Figure 3. Hispanic/Latino 12th Graders Reported Binging Behavior within the past 2 weeks in the Metro Region

30%

70%

Didn't Binge

Binge