

## Calculating Standard Error (SE)

For the purposes of this report, *Standard Error* (SE) is defined as a measurement of the standard error of a percentage (e.g., *% Proficient*, used throughout this report). Mathematically, SE's were calculated as follows:

(SE) =  $\sqrt{\frac{pq}{N}}$ , where  $p$  is the percent of students who are proficient,  $q = (100-p)$  and  $N$  is the population or group size.

It is important to note that the derived SE is based on the size of the group being examined and its respective performance (read: *% Proficient*) on the NECAP tests. Standard errors can be used to create a confidence interval around the derived percentage so that you can see the range in which the “true” (e.g., measured without error) value is located. To do so, you can take the SE and multiply it by 1.96 (for a 95% confidence interval). The resultant product is then added and subtracted from the percent proficient,  $p$ , for example, to create a range of values in which you can be 95% confident that the “true” value is located. For example, viewing the percent proficient ( $p$ ) as the center point, if one adds the value of SE(1.96) to  $p$  and also subtracts this value from  $p$ , then the full confidence interval is created with both an upper and lower boundary. So, if  $p$  equals 70% and the SE equals .5, then the product of SE and 1.96 equals .5(1.96) or .965. Adding and subtracting this number from 70% creates the confidence interval, which ranges from 69.04% to 70.97%. This is the range in which one can be 95% confident that the “true” lies.