Calculate Confidence (z) Interval for a Proportion:

Conditions for using the Formula:

1. Random: The data must be a random sample from the population.
2. Normal: There must be at least 10 successes and failures.
3. Independent: Sample is less than 10% of population, or replaced.

Formula for a one-sample z interval for a proportion:

$$(\text{statistic}) \pm (\text{critical value}) * (\text{standard deviation of statistic})$$

$$\hat{p} \pm z^* \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} \tag{1}$$

Finding the z-score from a table:

If the desired confidence was 99% then looking at a z-table we lookup 0.005 in the table and use the corresponding row and column header. For 99% it is approximately -1.645.