Lesson 12-2 Comparing Two Proportions

**Confidence intervals for comparing two proportions**

Draw an SRS of size n1 from a population having a proportion of p1 successes and draw an independent SRS of size n2 from another population having proportion p2 of successes. When n1 and n2 are large, an approximate level C **confidence interval for p1 – p2 is**

In this formula the standard error (SE) of p1 – p2 is

In practice, use this confidence interval when the populations are at least 10 times as large as the samples and n1ê1, n1(1 – ê1), n2ê2, and n2(1 – ê2) are **all 5 or more**.

**Significance tests for p1 – p2**

An observed difference between two sample proportions can reflect a difference in the population, or it may just be due to chance variation in random sampling. The null hypothesis says that there is no difference between the two populations. H0: *p1* – *p2*

To test the hypothesis, first find the pooled proportion ê of successes in both samples combined. Then compute the z statistic.

Use this test in practice when the populations are at least 10 times as large as the samples and n1ê1, n1(1 – ê1), n2ê2, and n2(1 – ê2) are all **5 or more**.