Four Step Inference Procedures
Confidence Intervals For Means
Tests of Significance For Means

Aquatics Paints, an international paint distributor with millions of customers, conducts a random sample of 300 customers. Shown below are the questions and responses.

Question: On a scale of zero to ten, rate the colors with zero being the least appealing color, five representing average appeal, and ten being the most appealing color. A list of twenty colors with swatches followed this inquiry.

Results: The following means were found for Ruby Red, Lush Lime, and Organic Orange.

Color	Average Score	Standard Deviation
Ruby Red	3.8	1.6
Lush Lime	6.7	1.9
Organic Orange	5.2	2.4

A1. Is there statistically significant evidence that the average "preference score for Ruby Red" in the population of Aquatics Paint customers is less than 4.0? Assume a significance level of 5%.

B1. Is there statistically significant evidence that the average "preference score for Lush Lime" in the population of Aquatics Paint customers is less than 7.0? Assume a significance level of 5%.

C1. Is there statistically significant evidence that the average "preference score for Organic Orange" in the population of Aquatics Paint customers is greater than 5.0? Assume a significance level of 5%.

A2. Estimate the preference score for Ruby Red in the populations of Aquatics Paints customers. Assume a confidence level of 95%.

B2. Estimate the preference score for Lush Lime in the populations of Aquatics Paints customers. Assume a confidence level of 95%.

C2. Estimate the preference score for Organic Orange in the populations of Aquatics Paints customers. Assume a confidence level of 95%.

Four Step Inference Procedures
Confidence Intervals For Proportions
Tests of Significance For Proportions

Gallup Poll gathered a random sample of 450 adults drawn from throughout the United States. The survey found:

Santorum 33% **Romney 32%** **Gingrich 15%**

A3. Estimate proportion of adults in the United States that will vote for Santorum if the election were held today. Assume a confidence level of 95%.

B3. Estimate proportion of adults in the United States that will vote for Romney if the election were held today. Assume a confidence level of 95%.

C3. Estimate proportion of adults in the United States that will vote for Gingrich if the election were held today. Assume a confidence level of 95%.

A4. Determine if there is statistically significant evidence to show the proportion of adults who support Santorum in the population of voters in the United States is less than 35%.

B4. Determine if there is statistically significant evidence to show the proportion of adults who support Romney in the population of voters in the United States is less than 35%.

C4. Determine if there is statistically significant evidence to show the proportion of adults who support Gingrich in the population of voters in the United States is less than 20%.