

Classroom Voting Questions: Elementary Statistics

Comparing Two Means

1. You are trying to decide whether to use a pooled t -test or a nonpooled t -test to compare two population means. Which of the following statements is not true?
 - (a) If the population standard deviations are very different, the Type I error probability can be much larger than the specified level for the pooled t -test.
 - (b) If the population standard deviations are somewhat different, the pooled t -test is preferable if the sample sizes are very different.
 - (c) If the population standard deviations are nearly the same, the pooled t -test is more powerful than the nonpooled t -test.
2. Thirty people suffering from obesity sign up to be subjects in a clinical trial. The subjects are weighed and then given a promising new supplement to take daily for six weeks. At the end of the six weeks, the subjects are weighed again. Which test is more appropriate?
 - (a) pooled t -test
 - (b) paired t -test
3. Two methods are used to predict the shear strength for steel plate girders. Each method is applied to nine specific girders and the ratio of predicted load to observed load is calculated for each method and each girder. What kind of t -test should we use to compare these data?
 - (a) Independent t -test
 - (b) Paired t -test
4. Two catalysts are being analyzed to determine how they affect the mean yield of a chemical process. Catalyst 1 is used in the process eight times and the yield in percent is measured each time. Then catalyst 2 is used in the process eight times and the yield is measured each time. What kind of t -test should be used to compare these data?
 - (a) Independent t -test
 - (b) Paired t -test

5. Six river locations are selected and the zinc concentration is determined for both surface water and bottom water at each location. What kind of t -test should be used to compare these data?
- (a) Independent t -test
 - (b) Paired t -test