

Instructions: Show all work. Answers without work can only be graded all or nothing. Partial credit is available only when work is shown. Answer all parts of each problem. Provide explanations as indicated. You may use Minitab or any other statistical software (such as a calculator or Excel) to complete any required statistical calculations or graphs.

1. Use the data in the table below to conduct a paired-t test to determine if mnemonic training improved scores. Clearly state the null and alternative hypotheses, test-statistic, p-value and your conclusion.

Before mnemonic training	After mnemonic training
204	223
393	412
391	402
265	285
326	353
220	243
423	443
342	340
480	582
464	490

2. Explain how the confidence level for a confidence interval is related to the significance level of a hypothesis test.
3. For the test in #1, describe in context the meaning of a Type II error.
4. Why are extremely large sample sizes potentially problematic? In explaining, be sure to include the difference between statistical significance and colloquial/everyday meanings of significance.