[**Note:** To complete this template, replace the bracketed text with your own content. Remove this note before you submit your outline.]

# Report: Regional vs. National Housing Price Comparison

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## Introduction

**Purpose**: [Include in this section a brief overview, the purpose of the report, and your approach. Define your random sample and two hypotheses (means) to analyze.]

**Sample:** [Take a random sample of observations from your region and describe what is included in your sample (i.e., states, region, years or months).]

**Questions and type of test:** [For your selected sample, define two hypothesis questions and the appropriate type of test hypothesis for each. For each hypothesis question, answer questions 3a-c from the Project Two Guidelines and Rubric. This includes questions about the population parameter, your hypothesis, the inference method you will use, and how you will use estimation and confidence intervals to help you solve the problem.]

## 1-Tail Test

**Hypothesis:** [Define the population parameter. Write null and alternative hypotheses. **Note**: For means, define a hypothesis that *is greater than* the population parameter. Specify your significance level.]

**Data analysis:** [Summarize your sample data using appropriate graphical displays and summary statistics.]

[Provide at least one histogram of your sample data.]

[In a table, provide summary statistics including sample size, mean, median, and standard deviation.]

**Note**: For quartiles 1 and 3, use the quartile function in Excel:

=QUARTILE([data range], [quartile number])

[Summarize your sample data, describing the center, spread, and shape in context.]

[**Note**: For shape, think about the distribution: skewed or symmetric.]

[Check the assumptions by determining if the normal condition has been met. Determine if there are any other conditions that you should check and whether they have been met.]

[**Note**: Think about the central limit theorem and sampling methods.]

**Hypothesis Test Calculations:**

[Determine the appropriate test statistic (*t*).]

[**Note**: This calculation is (mean – target)/standard error. In this case, the mean is your regional mean, and the target is the national mean.]

[Calculate the probability (*p* value).]

[**Note**: This calculation is done with the T.DIST.RT function in Excel: =T.DIST.RT([test statistic], [degree of freedom]). The degree of freedom is calculated by subtracting 1 from your sample size.]

**Interpretation:**

[Relate the *p* value and significance level.]

[Make the correct decision (reject or fail to reject).]

[Provide a conclusion in the context of your hypothesis.]

## 2-Tail Test

**Hypotheses:** [Define the population parameter. Write null and alternative hypotheses.]

[**Note**: For means, define a hypothesis that *is not equal to* the population parameter.]

[State your significance level.]

**Data Analysis:**

[Summarize your sample data using appropriate graphical displays and summary statistics.]

[Provide at least one histogram of your sample data.]

[In a table, provide summary statistics including sample size, mean, and standard deviation.]

[**Note**: For quartiles 1 and 3, use the quartile function in Excel:

=QUARTILE([data range], [quartile number]) ]

[Summarize your sample data, describing the center, spread, and shape in comparison to the national information.]

[**Note**: For shape, think about the distribution: skewed or symmetric.]

[Check the assumptions by determining if the normal condition has been met. Determine if there are any other conditions that you should check and whether they have been met.]

**Note**: Think about the central limit theorem and sampling methods.

**Hypothesis Test Calculations:**

[Determine the appropriate test statistic (*t*).]

[**Note**: This calculation is (mean – target)/standard error. In this case, the mean is your regional mean, and the target is the national mean.]

[Calculate the probability (*p* value).]

[**Note**: This calculation is done with the TDIST.2T function in Excel: =T.DIST.RT([test statistic], [degree of freedom]). The degree of freedom is calculated by subtracting 1 from your sample size.]

**Interpretation:**

[Relate the *p* value and significance level.]

[Make the correct decision (reject or fail to reject).]

[Provide a conclusion in context to your hypothesis.]

**Comparison of the Test Results:**

[Calculate the 95% confidence interval and show or describe the method of calculation.]

[Interpret the confidence 95% confidence interval in context.]

**Final Conclusions**

[**Summarize Your Findings:** Refer back to Step 1 and summarize your findings of the sample you selected.]

[**Discuss**: **Discuss** if you were surprised by the findings including why or why not.]