**Practice Problem 1**

|  |  |
| --- | --- |
| Null Hypothesis = | 205000 |
| Level of Significance | **0.05** |
| Sample Size | **100** |
| Sample Mean | **216710.00** |
| Standard Deviation | **43246.60** |
|  |  |
| *Test Statistic (Computed)* | *2.71* |

|  |  |  |  |
| --- | --- | --- | --- |
| Direction of Test | Upper Crit Value | *p*-Value | Decision |
| Upper-Tail Test |  |  |  |
|  | **1.6449** | **0.0034** | **Reject the null hypothesis** |

A One Sample Hypothesis test was conducted to determine if current home prices had risen above the $205,000 average recorded in the year 2000. Using an upper-tailed test, with the p-value of .0034 being less than .05 level of significance, we reject the null hypothesis and conclude, based upon our sample, that the mean sales price for homes is greater than $205,000. This is illustrated in the graph below.

**Practice Problem 2**

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| Null Hypothesis = | 5 |
| Level of Significance | **0.05** |
| Sample Size | **100** |
| Sample Mean | **5.19** |
| Standard Deviation | **2.77** |
|  |  |
| *Test Statistic (Computed)* | *0.69* |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Direction of Test | Lower Crit Value | Upper Crit Value | *p*-Value | Decision |
| Two-Tailed Test |  |  |  | **Do not reject the null** |
|  | **-1.9600** | **1.9600** | **0.4921** | **hypothesis** |

A two-tailedl test was conducted to determine if the average age of homes in the community was really five years. Based on a sample of 100 homes, with a mean age of 5.19 years, there is insufficient evidence to conclude that the average age is different from the hypothesized mean (=5). The p-value of .4921 is greater than .05, and so we retain the null hypothesis that the average home is five years old. This is illustrated in the graph below.

**Practice Problem 3**

|  |  |
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| Null Hypothesis *P* = | 0.5 |
| Level of Significance | **0.05** |
| Number of Brick Homes | **40** |
| Sample Size | **100** |
|  |  |
| *Sample Proportion* | *0.40* |
|  |  |
| *Z Test Statistic (Computed)* | *-2.00* |

|  |  |  |  |
| --- | --- | --- | --- |
| Direction of Test | Lower Crit Value | *p*-Value | Decision |
| Lower-Tail Test |  |  |  |
| H1: P < 0.5 | **-1.6449** | **0.0228** | **Reject the null hypothesis** |

A lower-tailed test for proportion was conducted to determine if fewer than half of the homes are made of brick. Based on a sample of 100 homes, this appears to be true. The p-value of .0228 is less than .05, and so we reject the null hypothesis and conclude that less than half of the homes are made of brick. The construction of homes is illustrated in the graph below.