

## Answer on Question #76159 – Math – Statistics and Probability

### Question

In a sample survey, six estimates were made of the same mean. When the population mean became known, the following errors were computed: -35, 111, -88, 47, -12, 26. are these errors consistent with the hypothesis that the population of errors has a zero mean?

### Solution

$$\bar{x} = \frac{1}{6} \sum_{i=1}^6 x_i = 8.17.$$

$$s = \sqrt{\frac{1}{5} \sum_{i=1}^6 (x_i - \bar{x})^2} = 69.16$$

Null hypothesis  $H_0: \mu = 0$ .

Alternative hypothesis  $H_a: \mu \neq 0$ .

$$\text{Test statistic: } t = \frac{\bar{x} - \mu}{s/\sqrt{n}} = \frac{8.17 - 0}{\frac{69.16}{\sqrt{6}}} = 0.29.$$

P-value:  $p = 0.7835$ .

Since the P-value is greater than 0.05 we fail to reject the null hypothesis and should conclude that these errors consistent with the hypothesis that the population of errors has a zero mean.

**Answer:** These errors consistent with the hypothesis that the population of errors has a zero mean.