Inference for:

one mean

Sample

0.9, -0.8, 1.3, -0.3, 1.7

Variance of the population is known

Null hypothesis

$H_0 : \mu =$

0,1

Alternative

- $\neq$
- $>$
- $<$

Significance level $\alpha =$

0.01 0.05 0.2

0.01 0.03 0.05 0.07 0.09 0.11 0.13 0.15 0.17 0.19 0.2

Data

0.9, -0.8, 1.3, -0.3, 1.7

$n = 5$

$\bar{x} = 0.56$

$s = 1.067$

Confidence interval *(two-sided)*

95% CI for $\mu = \bar{x} \pm t_{\alpha/2,n-1} \frac{s}{\sqrt{n}} = 0.56 \pm (2.776 * 1.067 / 2.236) = [-0.765; 1.885]$

Hypothesis test

1. $H_0 : \mu = 0.1$ and $H_1 : \mu \neq 0.1$
2. Test statistic : $t_{obs} = \frac{\bar{x} - \mu_0}{s/\sqrt{n}} = (0.56 - 0.1) / 0.477 = 0.964$
3. Critical value : $\pm t_{\alpha/2,n-1} = \pm t(0.025, 4) = \pm 2.776$
4. Conclusion : Do not reject H_0

Interpretation

At the 5% significance level, we do not reject the null hypothesis that the true mean is 0.1 (p-value = 0.39).