

Statistics

Lecture 26



Feb 19-8:47 AM

CNN claims that 40% of voters are in support of accepting gift from other countries to the politicians.

$P = .4$ claim
 \uparrow
 H_0

In a survey of 545 voters, 38% of them had same views.

$n = 545$
 $\hat{p} = .38 \Rightarrow X = n\hat{p} = 545(.38) = 207.1 \approx 208$

Use $\alpha = .01$ to test the claim.

$H_0: P = .4$ claim
 $H_1: P \neq .4$ TTT

CV Z TTT $\alpha = .01$

CTS $Z = -.874$
P-Value $P = .382$

1-Prop Z Test

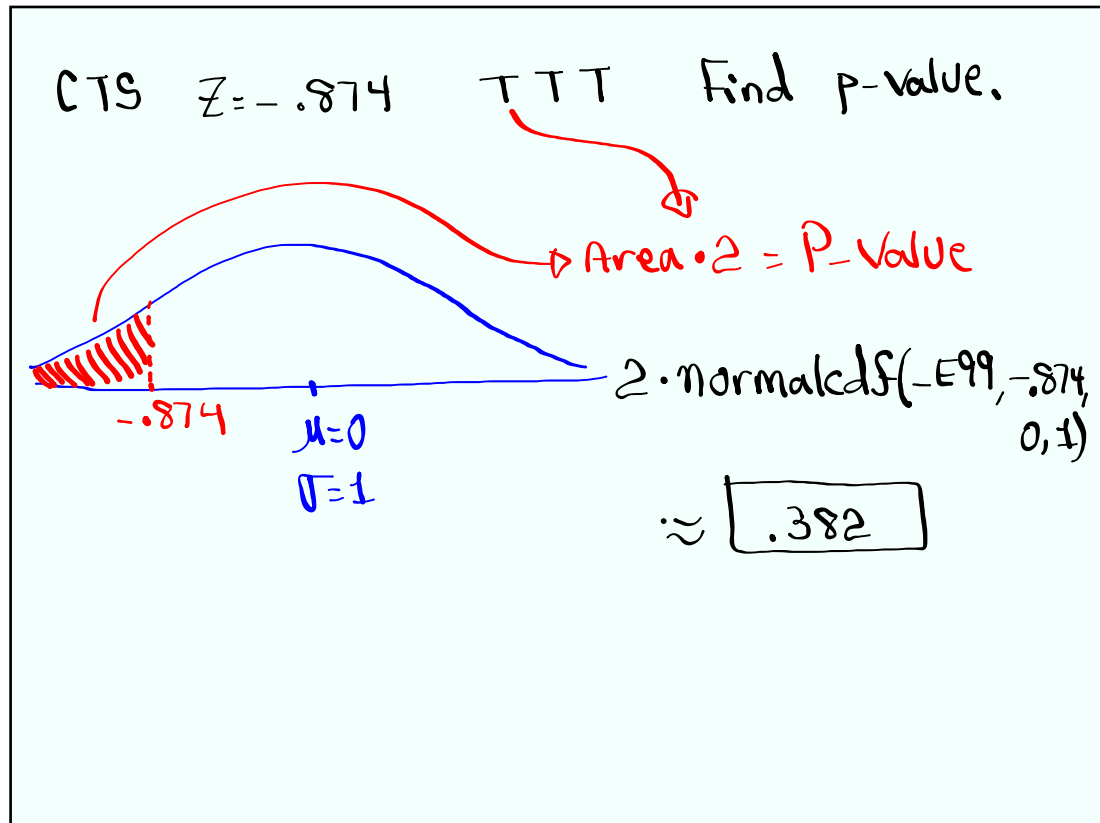
CTS is in NCR
 $P\text{-Value} > \alpha$

H_0 Valid \rightarrow Valid claim
 H_1 invalid

FTR the claim

Normal distribution curve diagram showing critical values at -2.576 and 2.576 , with $\mu = 0$ and $\sigma = 1$. The area under the curve between the critical values is labeled $NCR .99$. The areas in the tails are labeled $CR .005$. The test statistic $Z = -.874$ is shown to the left of the left critical value, indicating it falls in the non-critical region (NCR).

May 21-1:49 PM



May 21-2:00 PM

The college bookstore claims that the mean price of all new textbooks are less than \$125.

$\mu < 125$ claim

H_1

I randomly selected 12 new textbooks, their mean price was \$120 with standard deviation of \$15.

$n=12$
 $\bar{x}=120$
 $s=15$

Test the claim. no $\alpha \rightarrow \alpha=.05$

$H_0: \mu \geq 125$

$H_1: \mu < 125$ claim, LTT

σ unknown Case II

CV t LTT $\alpha=.05$

$df = n-1 = 11$

CTS $t = -1.155$

P-Value $P = .136$

T-Test

CTS is in NCR

P-Value $> \alpha$

H_0 Valid

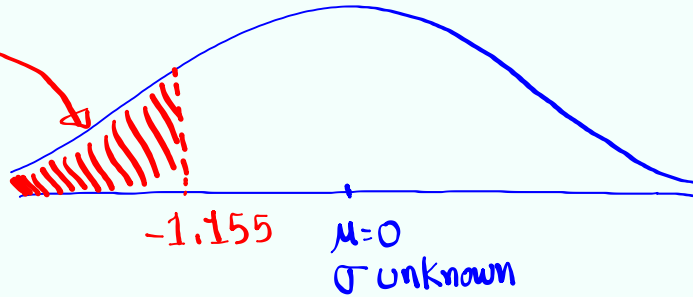
H_1 invalid \rightarrow Invalid claim \Rightarrow **Reject the claim**

$t = \text{invT}(.05, 11)$

May 21-2:03 PM

CTS $t = -1.155$ $df = 11$ LTT

find P-Value



$$tcdf(-E99, -1.155, 11) \approx \boxed{.136} \quad df = 11$$

May 21-2:17 PM