Statistics

Lecture 47

Feb 19-8:47 AM

The College claims that at most 25% of all female students are STEM majors. → $P \leq .25$

H_0: $P \leq .25$ claim

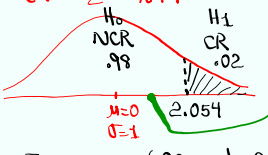
H_1: $P > .25$ RTT

In a sample of 175 female students, 28% of them were Stem majors.

$n = 175$, $\hat{P} = .28$ $\Rightarrow x = n\hat{P} = 175(.28) = 49$ If decimal → Round-UP

Test the claim at $\alpha = .02$.

CV Z RTT



$Z = \text{invNorm}(.98, 0, 1) = 2.054$

CTS is in NCR

P-Value $> \alpha$

H_0 valid → valid claim → FTR the claim

H_1 invalid

CTS $Z = .917$

P-Value $P = .180$

1-PropZTest

$P_0 : .25$ H_0

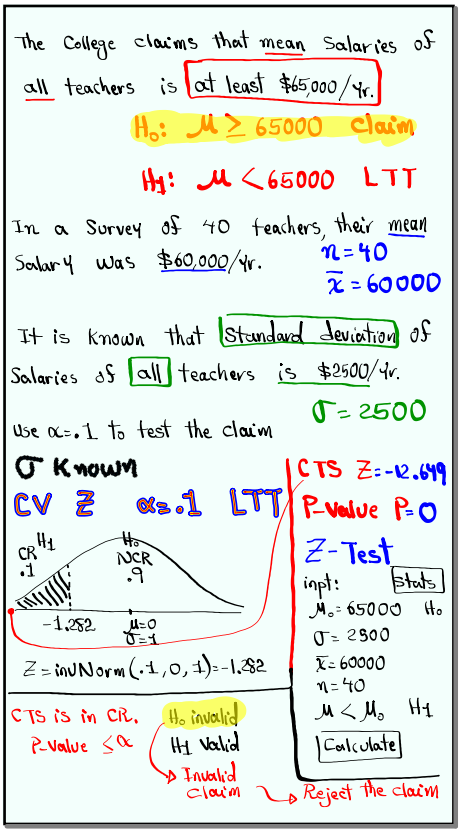
$x : 49$

$n : 175$

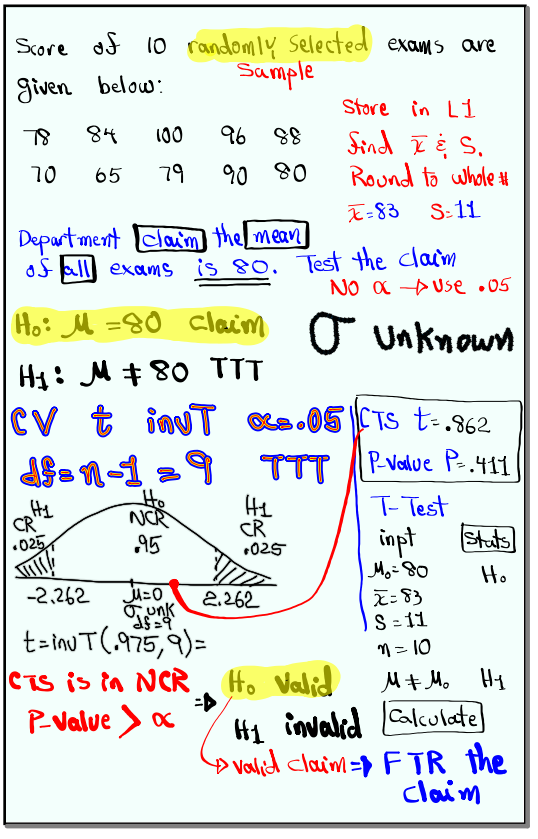
Prop $> P_0$ H_1

Calculate

Nov 25-8:49 AM



Nov 25-9:02 AM



Nov 25-9:16 AM

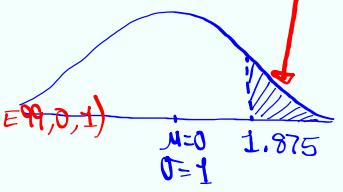
What is P-value?

P-value is the area of tail of the dist. graph marked by CTS.

only for TTT ⇒ Multiply by 2.

Ex: CTS $Z = 1.875$ RTT

Find P-value.



P-value = normalcdf(1.875, E99, 0, 1)

= .030

if it was TTT,

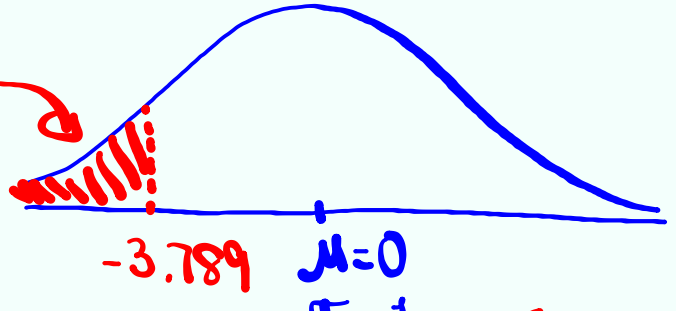
P-value = 2(.030)

= .06

Nov 25-9:31 AM

CTS $Z = -3.789$ LTT

Find P-value.



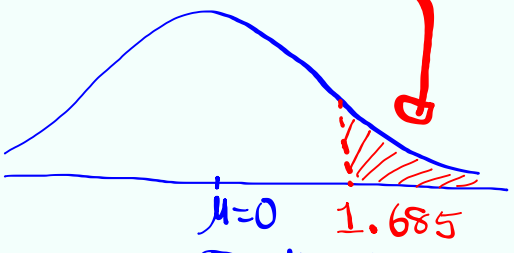
normalcdf(−E99, −3.789, 0, 1) = 7.6×10^{-5}

If TTT ⇒ P-value = $2(7.6 \times 10^{-5}) = 1.5 \times 10^{-4}$

Nov 25-9:36 AM

CTS $t = 1.685$ $df = 14$ RTT

find P-value



σ unknown
$df = 14$

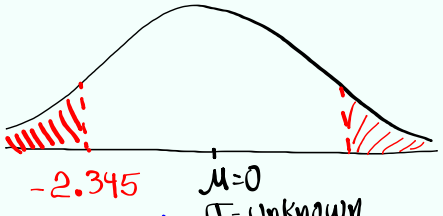
$tcdf(\overset{L}{1.685}, \overset{U}{E99}, \overset{df}{14}) = .057$

If TTT $\Rightarrow$ P-value $= 2(.057) = .114$

Nov 25-9:41 AM

CTS $t = -2.345$ $df = 19$ TTT

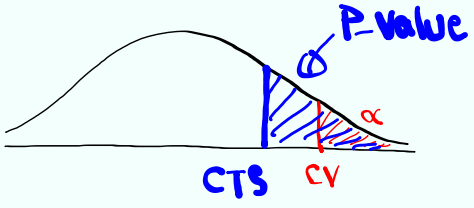
find P-value



σ = unknown
$df = 19$

P-value $= 2 \cdot tcdf(-E99, -2.345, 19)$

$= .030$



Nov 25-9:45 AM