Statistics

Lecture 16

Feb 19-8:47 AM

SG 24

Testing One Population Proportion:

$H_0: p = p_0$ | $H_0: p \geq p_0$ | $H_0: p \leq p_0$

$H_1: p \neq p_0$ | $H_1: p < p_0$ | $H_1: p > p_0$

TTT | LTT | RTT

Critical Value z

Use invNorm

Draw, label, shade, full TI command

Computed Test statistic CTS and P-Value P

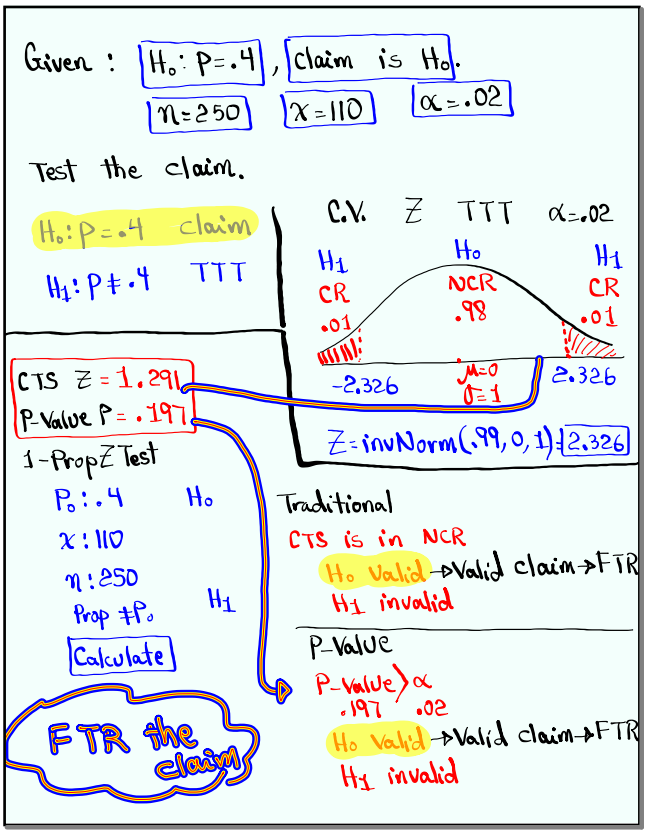
STAT TESTS 1-PropZTest ...

Use Testing Chart to determine the validity of H_0 & H_1.

Final Conclusion must be about the claim

Reject the claim OR FTR the claim

Jul 29-4:34 PM



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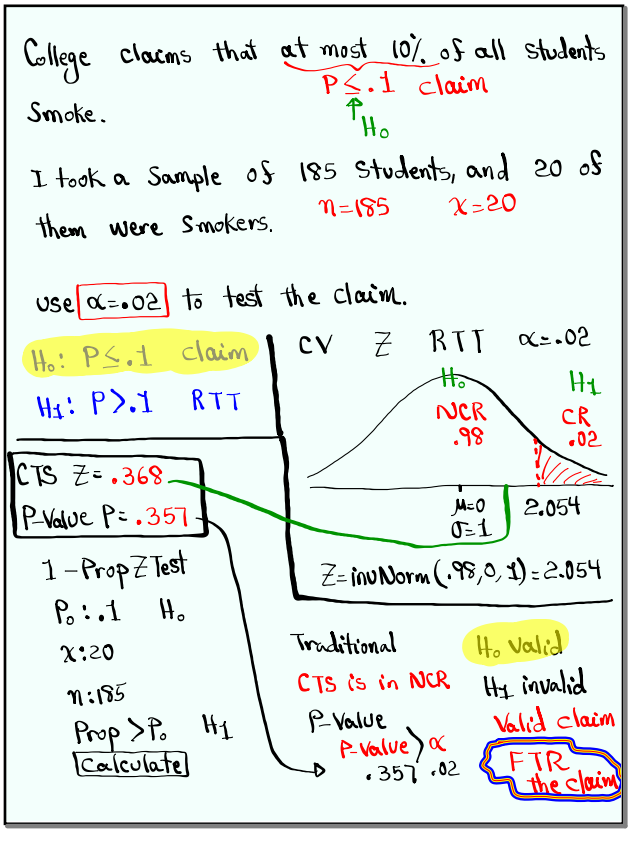

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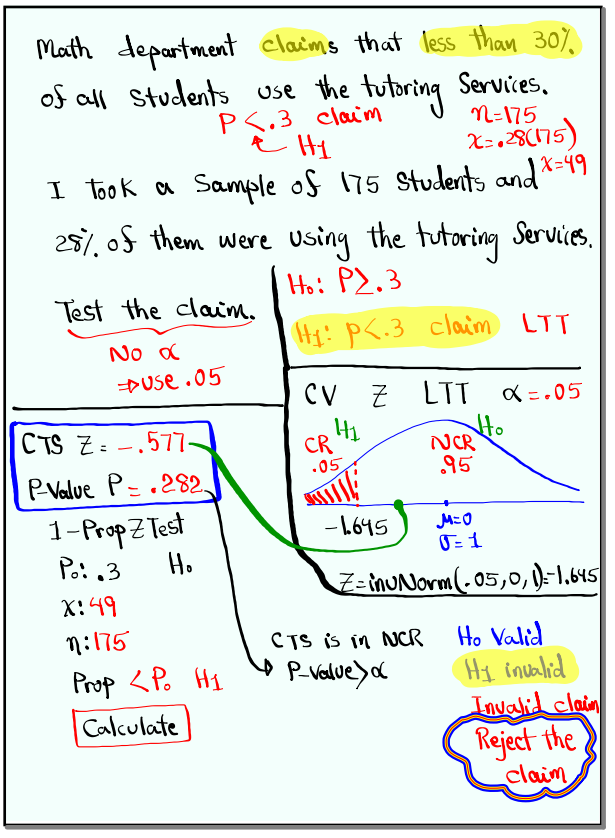

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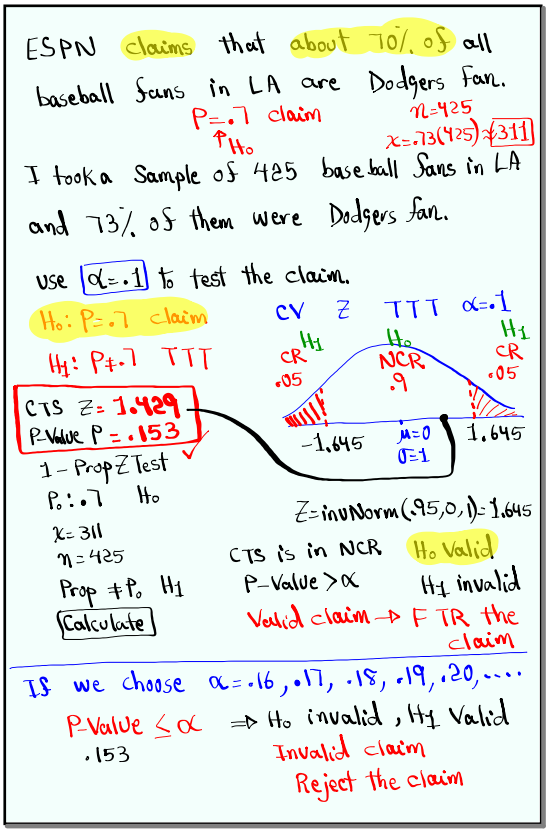
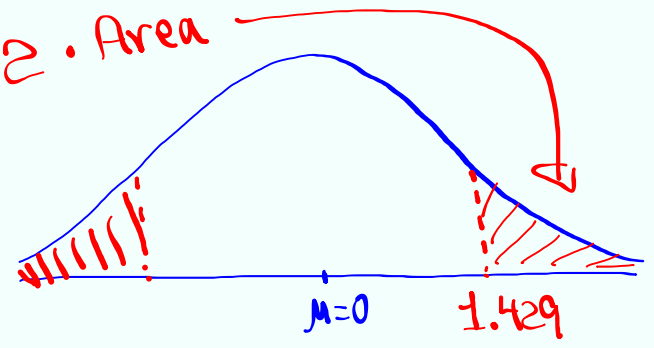


Jul 29-5:24 PM

Given CTS $Z = 1.429$ TTT

Find P-Value = 2 · Area



$= 2 * \text{normalcdf}(1.429, E99, 0, 1)$

$\approx \boxed{.153}$

Jul 29-5:38 PM

Testing one Population Mean: SG 25

$H_0: \mu = \mu_0$ vs $H_1: \mu \neq \mu_0$ TTT

$H_0: \mu \leq \mu_0$ vs $H_1: \mu > \mu_0$ RTT

$H_0: \mu \geq \mu_0$ vs $H_1: \mu < \mu_0$ LTT

Case I: σ Known

CV Z invNorm

CTS Z

P-Value P

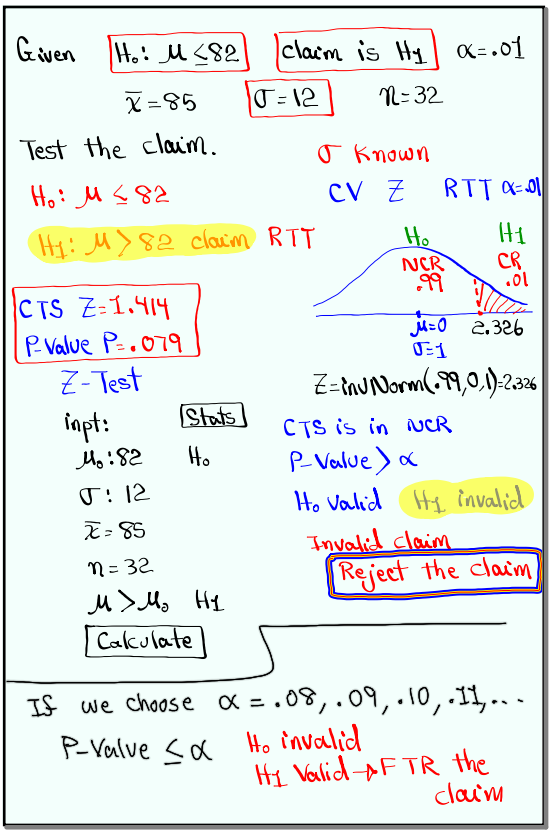
Z-Test

Testing chart for validity of H_0 & H_1

Final Conclusion about claim

Reject the claim OR FTR the claim

Jul 29-5:55 PM



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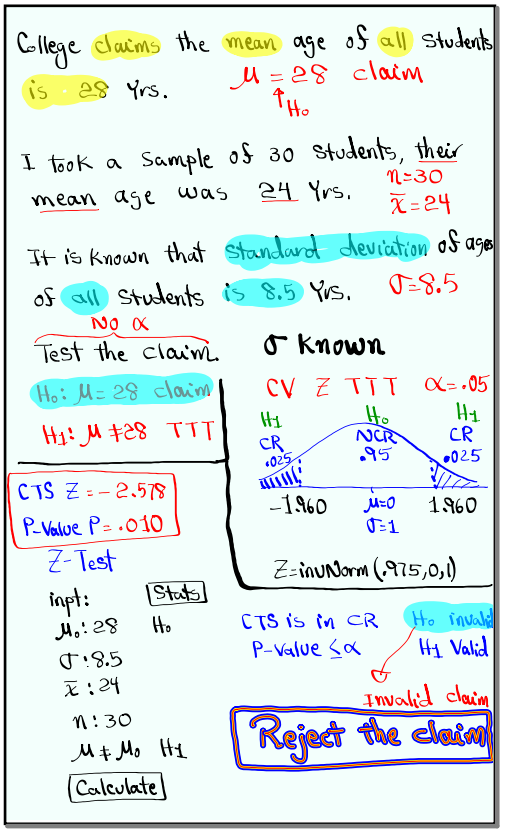

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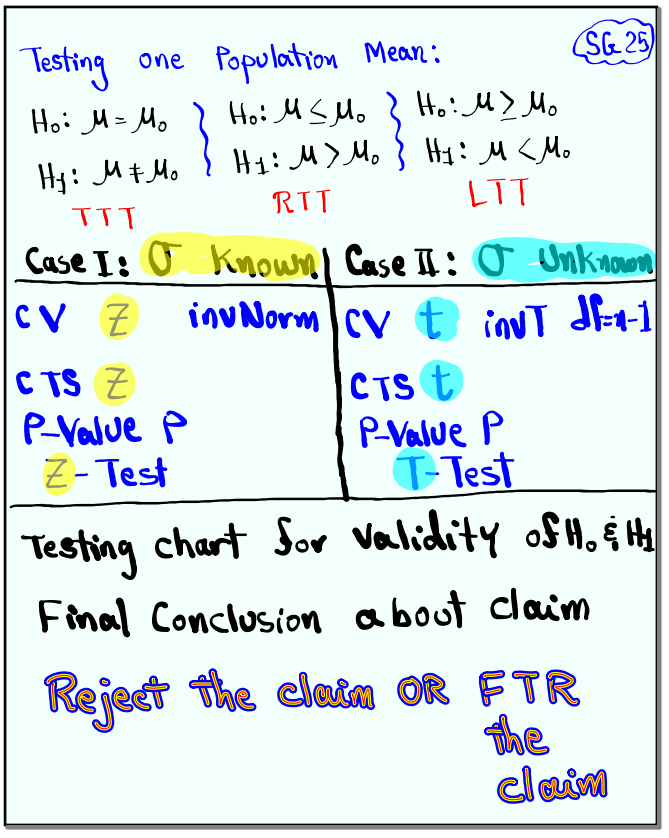

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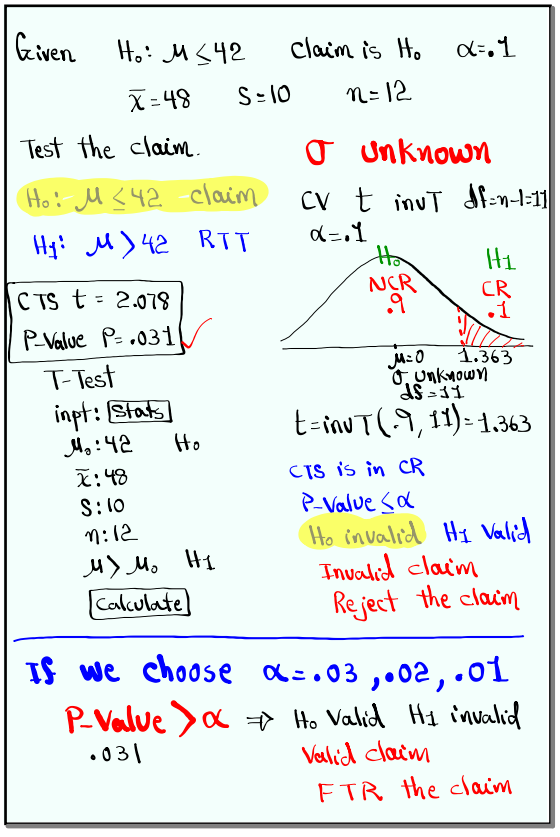


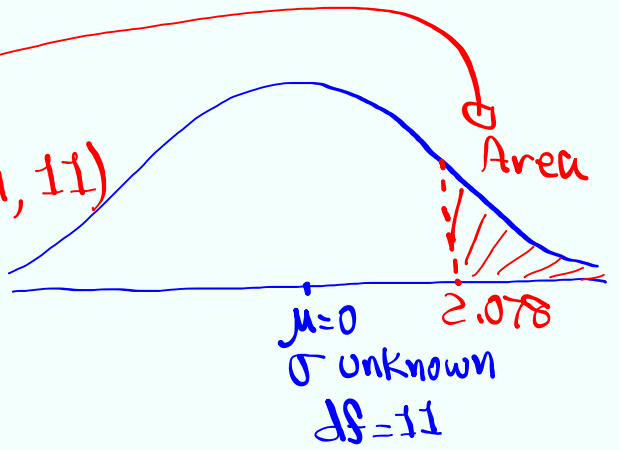
Jul 29-6:30 PM

CTS $t = 2.078$ $df = 11$ RTT

Find P-Value

$= tcdf(2.078, E99, 11)$

$\approx .031$



Jul 29-6:42 PM

I randomly Selected 8 exams, here are the Scores

78 85 100 92

70 98 55 80

Find $\bar{x}$ & S. Round to whole #

$\bar{x} = 82.25$ $\bar{x} = 82$

$S = S_x = 15.031$ $S = 15$

$n = 8$

No $\alpha \rightarrow .05$

Test the claim that the mean of all exams is 88.

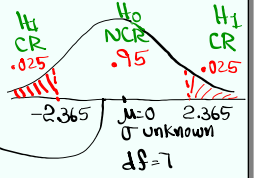
$H_0: \mu = 88$ claim

$H_1: \mu \neq 88$ TTT

σ unknown

CV t TTT $\alpha = .05$

$df = n - 1 = 7$



CTS $t = -1.131$

P-Value $P = .295$

T-Test

inpt: Stats

$\mu_0 = 88$ H_0

$\bar{x} = 82$

$S = 15$

$n = 8$

$\mu \neq \mu_0$ H_1

Calculate

$df = 7$

$t = invT(.975, 7)$

CTS is in NCR H_0 Valid

P-Value $> \alpha$ H_1 invalid

$.295 > .05$

Valid claim

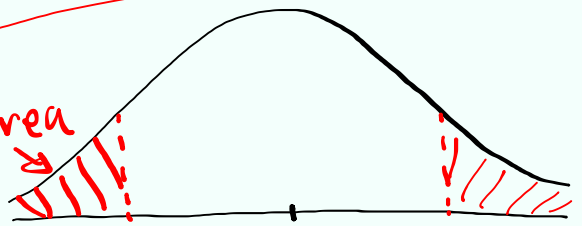
FTR the claim

Jul 29-6:45 PM

CTS $t = -1.131$ $df = 7$ TTT

Find P-value.

2 • Area



2*tcdf(-E99,-1.131,7)

= .295

Jul 29-6:59 PM

LA Times claims that the mean Salary of all nurses is at most $6500/mo.

$\mu \leq 6500$ claim

H_0

I took a Sample of 12 nurses, their mean monthly Salary was $8500 with Standard dev. of $500.

$n = 12$

$\bar{x} = 8500$

$S = 500$

Test the claim.

$H_0: \mu \leq 6500$ claim

σ unknown

$H_1: \mu > 6500$ RTT

CV t RTT

No $\alpha \to .05$

$df = n - 1 = 11$

CTS $t = 13.856$

P-Value $P = 1.309 \times 10^{-8}$

T-Test

inpt: Stats

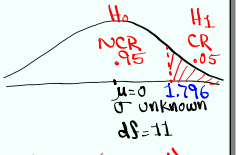
$\mu_0: 6500$ H_0

$\bar{x} = 8500$

$S = 500$

$n = 12$

$\mu > \mu_0$ H_1



$t = invT(.95, 11)$

CTS is in CR

P-Value $\leq \alpha$

H_0 invalid H_1 Valid

Invalid claim

Reject the claim

Sec 25

Jul 29-7:04 PM