Mean or Proportion:

3) p = the prop. of first-time brides in u.s. that are younger than their grooms.

$H_0: p = .5$

$H_a: p \neq .5$

$\hat{p} = .53$

$\sigma_{\hat{p}} = \sqrt{\frac{.5(1-.5)}{100}} =$

$z = \frac{.53 - .5}{\sqrt{\frac{.5(1-.5)}{100}}} = .6$

$2 \cdot P(z > .6) = .5485$

Conditions:

- (n is large) $np \geq 10$ and $n(1-p) \geq 10$

  $100(.5) \geq 10$ $100(1-.5) \geq 10$

  $50 \geq 10$ $50 \geq 10$

- SRS from pop. of interest
  - problem states "sampled 100 1st brides"
  - sampled right pop.
  - assume random sample

With a p-value of .5485, this is NOT sign. at .01 level. Fail to reject H_0.

There's not enough evid. to say the prop. of 1st time brides that are younger than their grooms differs from 50%.

4) μ = The mean score on 1^{st} stats test by all his students.

$H_0: \mu = 65$

$H_a: \mu > 65$

$\bar{x} = 67$

$s_x = 3.1972$

$n = 10$

$df: 9$

$\sigma_{\bar{x}} = \frac{3.1972}{\sqrt{10}}$

$$t = \frac{67-65}{\frac{3.1972}{\sqrt{10}}} = 1.98$$

$P(t > 1.98) = .0396$ (calc)

or

between .025 - .05 (on chart)

Cond.

- $n \geq 30$ or pop. is normal

  $n = 10 \not\geq 30$

  but problem says data is from a normal pop see next page

- SRS from pop. of interest
  - took sample of 10 stats students (pop.)
  - assume it was random

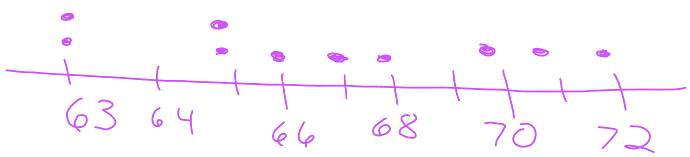
with a p-value of .0396, this is sign. at the .05 level.

Reject H_0.

There is evidence that the mean score is higher than 65.

4) If hadn't said pop. is normal:

$n = 10 \not\geq 30$



Based on sample graph, which appears skewed right. It's not safe to assume pop. is normal.

	H_0 T	H_0 F
Reject H_0	I α =	power =
fail to reject		II β =

$H_0: \mu = 65$

$H_a: \mu > 65$

Type I: Reject H_0/but H_0 is true
The evid. shows the mean score is higher than 65, but it isn't

Type II: Fail to reject H_0/but H_0 was False
Not enough evid. to say mean score is higher than 65, but it is.