

Practice Quiz 2

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Contents

1. T-test assumes
 - all observations x_i are independent
 - all observations x_i are idetically distributed
 - all observations x_i are drawn from a Gaussian $\sim N(\mu, \sigma)$
 - all of the above
2. In a statistical test, it is possible to reject the *null hypothesis*, H_0 : True or False
3. The research hypothesis is what we believe is true. True or False
4. The variation of average of n values x_i with mean μ and standard deviation σ is the same as x_i ? True or False
5. The test statistics:

$$t = \frac{\hat{x} - \mu}{\text{SEM}} = \frac{\hat{x} - \mu}{\frac{\sigma}{\sqrt{n}}}$$

has distribution:

- a. $N(0, 1)$ b. $N(\mu, \sigma^2)$ c. $t(0, 1)$ d. $\Gamma(n, n - 1)$
6. What if observations are drawn from 2 different Gaussians, can we still test if $\mu_1 = \mu_2$?
 - a. Yes the two sample t-test
 - b. No there is no way
 - c. Yes Just use a one sample test
 - d. No variance can't be pooled

8. Sample is bigger than the population? True or False
9. If some cases have a higher chance of being in the sample, it is fine because they came from the population.
10. A typical question: Did the treatment have an effect.
11. The critical value is the value such that there is only an $\alpha = .05$ (5\
12. For the same level of α a one tailed test will have a lower critical value.
13. A one tailed test specifies the direction of the relationship.