

Instructions

Calculators (simple & graphing) will be allowed along with one page with a single side of handwritten notes. You will receive a copy of the z- and t-table with this quiz. You will have the full class period (50 minutes minus setup time).

Formulas

No formulas will be provided with this quiz as you can bring a single side of notes.

1- versus 2- tailed tests

1. What is the critical z value(s) for 2-tailed test with $\alpha = 0.10$?
 - a. +1.28
 - b. -/+1.28
 - c. -/+1.65
 - d. -/+ 1.65 divided by 2

2. You are testing for an increase in sample mean with $\alpha = 0.05$. Which of the following z values are considered statistically significant.? (select all that apply)
 - a. -2.04
 - b. -0.39
 - c. +0.64
 - d. +1.76

3. What is the critical t value for a 1-tailed t-test for a decrease in sample mean. $N = 10$ and $\alpha = 0.01$
 - a. -2.76
 - b. -2.82
 - c. -1.81
 - d. -1.83
 - e. -3.25

t-test

Questions 4 – 7 use the following information:

Assume that diastolic blood pressure for the U.S. population is 80. A psych graduate student is testing the hypothesis that watching a thriller-movie increases blood pressure. She finds the following sample values and calculates the mean and SS.

Blood pressure values

75

72

82

75

Mean = 76

Sum of squares (SS) = 54

4. What is the estimate of the population standard deviation?
- 13.5
 - 3.67
 - 18
 - 4.24
5. What is the t value for the sample mean?
- 1.89
 - 4
 - 2.54
 - 0.39
6. Assume $\alpha = 0.05$. What is the critical t value?
- 2.13
 - 2.35
 - 2.78
 - 3.18
7. What is the best conclusion (Select all that apply)?
- Reject null hypothesis
 - Retain the null hypothesis
 - The thriller affected blood pressure
 - The thriller did not affect blood pressure

Power

Questions 8-10 use the following information:

The population mean is 50 and standard deviation is 15. Alpha is set to 0.05. We expect an effect size of +5 and will have a sample size (n) = 10.

8. What is the critical sample mean?
- 57.8
 - 1.65
 - 55
 - 62.1
9. What is the power for this effect and sample size?
- 5%
 - 12%
 - 28%
 - 64%
 - 82%

10. Which actions will increase power? (select all that apply)
- a. Changing effect size from 5 to 7
 - b. Increasing variability
 - c. Double n
 - d. Change alpha to 0.01

Confidence Interval

11. Given a sample with mean = 40, $s = 15$ and $n = 20$, what is the 95% confidence interval for the population mean?
- a. 33.0 – 47.0
 - b. 25.0 – 55.0
 - c. 37.9 – 42.1
 - d. 34.4 – 45.6

Outcomes & Errors

12. What is the chance of a type I error?
- a. Alpha
 - b. $1 - \alpha$
 - c. Power
 - d. $1 - \text{power}$
 - e. Depends on the z score
13. If you want to decrease the chance of a “miss” outcome, which would you do?
- a. Decrease alpha
 - b. Decrease variability
 - c. Reduce effect size