

Quiz 2
Econ 526 - Introduction to Econometrics

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Name:

SECTION B - TRUE OR FALSE

- 10% 1. Let Y_1, Y_2, \dots, Y_n be i.i.d. random variables with mean μ , and variance σ^2 . The *Central Limit Theorem* (CLT) states that, for n large, $Z_n = \frac{\bar{Y}_n - \mu}{\sigma/\sqrt{n}}$ will converge to a standard Normal distribution only if Y_1, Y_2, \dots, Y_n has Normal distribution.
 True False
- 10% 2. The *Law of Large Numbers* (LLN) states that the sample average of n independent and identically distributed random variables, for n large, follows a Normal distribution.
 True False
- 10% 3. The *Law of Large Number* (LLN) is related with the concept of convergence in probability, while *The Central Limit Theorem* (CLT) is related with convergence in distribution.
 True False
- 10% 4. We say that an estimator is unbiased if it converges in probability to the true parameter.
 True False
- 10% 5. Consistency of an estimator is related to its asymptotic properties, i.e., with the idea of what happens to the estimator when the samples size n gets large.
 True False
- 10% 6. Let Y_1, Y_2, \dots, Y_n be i.i.d. random variables with mean μ , and variance σ^2 . Consider the following estimator: $W = \frac{Y_1 + Y_2}{2}$. Then, W is an unbiased estimator of μ .
 True False

SECTION C - SHORT ANSWER

- 40% 1. Suppose a researcher would like to know what is the mean hours per month Kansas residents spend commuting to work. In order to do that s/he **randomly drawn** 800 Kansas residents and tracked during a month the hours they spent commuting to work.
- (a) What is the population of his/her problem? [1 or 2 line(s) answer]
- (b) What is the sample? [1 or 2 line(s) answer]
- (c) What (populational) parameter s/he wants to know? [1 line answer]
- (d) What estimator could s/he use to accomplish the task? [1 line answer]