

STAT 113: TWENTY QUESTIONS (PLUS FIVE) REVIEW

Sampling Distributions.

- (1) The “cases” that make up a sampling distribution are _____

- (2) (a) If we are interested in estimating or testing a hypothesis about a population mean, we should investigate the sampling distribution of what variable?
 - (b) What if we are interested in a population proportion?
 - (c) A difference of population means?
 - (d) A population correlation?

- (3) The **standard error** of the population parameter is the _____ of the _____.

- (4) A similar statement holds for some other statistics/parameters, under a particular condition. What condition?

Confidence Intervals.

- (5) Which of the following are valid interpretations of what confidence intervals mean?
 - (a) We can be 93% confident that the population parameter falls in the 93% confidence interval.
 - (b) A 93% CIs contains 93% of the cases in the population.
 - (c) A 93% CIs contains 93% of the cases in the sample.
 - (d) 93% of 93% CIs contain the population parameter.
 - (e) 93% of samples have a statistic that falls in the 93% CI.

- (6) To construct a bootstrap distribution, we treat the _____ as the _____, and draw samples from it, being sure to _____ after each observation is drawn. We then compute the statistic of interest for each sample. The collection of these statistics form the bootstrap distribution.

- (7) We use bootstrap distributions because they allow us to estimate _____ and/or construct _____.
- (8) Bootstrap distributions are centered at the _____.
- (9) The standard deviation of the bootstrap distribution can be used as an estimate of _____.
- (10) We can get the endpoints of a 94% confidence interval using a bootstrap distribution using the _____ and the _____ of the distribution.
- (11) Name two factors that affect the width of a confidence interval, and indicate whether there is a positive or negative relationship.

Hypothesis Testing.

- (12) Both H_0 and H_1 are statements about characteristics of _____.
- (13) To test hypotheses, we construct **randomization distributions**. These represent hypothetical outcomes of a study, assuming that _____ is true.
- (14) Randomization distributions are typically centered at _____.
- (15) This stands in contrast to bootstrap distributions, which are typically centered at _____.
- (16) The P -value represents the likelihood of getting _____, assuming that _____ is true.
- (17) We reject H_0 when the P -value is _____ compared to the _____. When this happens we say the result is _____.
- (18) We can calculate the P -value by constructing a _____ and finding the proportion of _____ within it that lie at or beyond _____.

- (19) If our H_1 is non-directional (two-tailed), then we also need to consider the cases that lie at or beyond _____.
- (20) In this (two-tailed) case, how is the P -value obtained from these two proportions?
- (21) Does rejecting H_0 with a two-tailed test require a bigger or smaller absolute difference between the sample statistic and the null parameter value than with a one-tailed test (all else equal)?
- (22) Sometimes our rejection decision will be wrong. When we *incorrectly reject* H_0 , this is called a _____ or a _____, and means that _____.
- (23) When we *incorrectly fail to reject* H_0 , this is called a _____ or a _____, and means that _____.
- (24) Of the times that H_0 is true, the proportion of the time we will reject it (incorrectly) is determined by _____ and is equal to _____.
- (25) We can make it easier or harder to reject H_0 by _____ing or _____ing the _____ (respectively). What effect will this have on the two types of errors?