

AP Statistics

Name: _____ Score: _____

1. Inference about a proportion mainly does what?
 - ☐ makes the sample bigger
 - ☐ uses sample data to estimate or test a population proportion
 - ☐ removes all uncertainty
 - ☐ guarantees the true p
2. $n = 100$, $\hat{p} = 0.60$. Compute the standard error $\sqrt{(\hat{p}(1-\hat{p})/n)}$. Two decimals.

3. The correct interpretation of a 95% confidence level is...
 - ☐ about 95% of intervals built this way capture p over many samples
 - ☐ 95% of the data lie in the interval
 - ☐ the sample is 95% accurate
 - ☐ there's a 95% probability p is in this one interval
4. The null hypothesis for a one-proportion test has the form...
 - ☐ $H_0: p = p_0$
 - ☐ $H_0: \hat{p} = 0$
 - ☐ $H_a: p > 1$
 - ☐ $H_a: p \neq p_0$
5. The p-value is the probability of a result at least as extreme as observed, assuming...
 - ☐ $\hat{p} = 0.5$
 - ☐ H_0 is true
 - ☐ H_a is true
 - ☐ the sample is biased
6. The decision rule for a significance test is: reject H_0 when...
 - ☐ $z = 0$
 - ☐ $\hat{p} = p_0$
 - ☐ $p\text{-value} \leq \alpha$
 - ☐ $p\text{-value} > \alpha$
7. For a test calibrated at significance level α , α is the nominal Type I error level.
 - ☐ True ☐ False
8. $\hat{p}_1 = 0.60$, $\hat{p}_2 = 0.50$. Find the point estimate $\hat{p}_1 - \hat{p}_2$.

9. If a difference interval contains 0, no difference between the groups is plausible.
 - ☐ True ☐ False
10. Using the given rounded $SE = 0.061$, find $(0.30 - 0.20)/0.061$ to two decimals.

1. uses sample data to estimate or test a population proportion

Inference connects a sample to a population parameter and reports sampling uncertainty under the study assumptions.

2. 0.05

$$\sqrt{(0.6 \cdot 0.4/100)} = \sqrt{0.0024} \approx 0.049 \approx 0.05.$$

3. about 95% of intervals built this way capture p over many samples

Confidence describes the method over repeated sampling.

4. $H_0: p = p_0$

H_0 states a specific value p_0 (the status quo).

5. H_0 is true

p-value is computed under the assumption that H_0 is true.

6. $p\text{-value} \leq \alpha$

Reject when the p-value is at most the significance level.

7. True

α is the chosen false-rejection level under H_0 . Approximate and discrete procedures need not have actual error probability exactly α .

8. 0.1

$$0.60 - 0.50 = 0.10.$$

9. True

0 inside $\rightarrow$ 'no difference' can't be ruled out.

10. 1.64

Using exactly the supplied rounded SE gives $0.10/0.061 \approx 1.6393$, or 1.64. Using the unrounded formula gives 1.633 instead; retain precision in an actual analysis.