GENERAL

# ap statistics quiz b chapter 6 answer key

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## Introduction: Why AP Statistics Chapter 6 Matters

For students preparing for the College Board's AP Statistics exam, mastering each chapter of the curriculum is essential. Chapter 6, "Inference for Means," is a cornerstone of the course, covering the statistical tools that allow us to draw conclusions about population means from sample data. Whether you're tackling the multiple choice section, the free response questions, or a practice quiz, a solid grasp of the concepts in Chapter 6 will boost your confidence and improve your scores.

In this article we focus on **AP Statistics Quiz B Chapter 6 answer key**—a resource that many students use to verify their work and deepen their understanding. We'll walk through the quiz structure, present the answer key with detailed explanations, and offer study strategies to help you internalize the material.

## Understanding Chapter 6: Inference for Means

### Key Concepts Covered in Chapter 6

- Sampling distributions of sample means
- Central Limit Theorem and its implications for large samples
- Confidence intervals for a population mean (known and unknown population standard deviation)
- t tests for a single mean (one sample t test)
- Hypothesis testing: null and alternative hypotheses, type I and type II errors, p values
- Effect size and power calculations
- Assumptions underlying parametric tests and how to check them
- Practical applications: comparing means, interpreting results in real world contexts

## Quiz B Overview: Format & Common Question Types

### Structure of Quiz B

Quiz B is typically the second quiz in a chapter, designed to reinforce the material covered in the unit. It usually contains 10–15 multiple choice questions that test both conceptual understanding and computational skills. The questions are grouped into sub sections such as:

- Confidence interval construction
- Hypothesis test decision making
- Assumption checking and data visualization
- Interpretation of results in context

### Typical Question Themes

Students often encounter the following themes in Quiz B:

1. Choosing the correct formula for a confidence interval
2. Identifying whether the population standard deviation is known or unknown
3. Interpreting the meaning of a 95% confidence interval in plain language
4. Deciding whether to use a z test or a t test based on sample size and data normality
5. Calculating the test statistic and comparing it to the critical value or p value

6. Assessing the assumptions of normality and independence
7. Determining the effect size and its practical significance
8. Drawing conclusions about a research question from statistical results

## Answer Key: AP Statistics Quiz B Chapter 6

Below is a comprehensive answer key for a typical AP Statistics Quiz B covering Chapter 6. Each question includes the correct answer and a brief explanation. Use this key to validate your work and to understand the reasoning behind each solution.

### Question 1

**Answer:** *Option C*

**Explanation:** The question asks for the 95% confidence interval for a population mean when the population standard deviation is unknown and the sample size is 25. Because the sample size is small (*#2 B¢ ‡2ò!¡Ø* Option C provides the appropriate t* value and the correct interval calculation.

### Question 2

**Answer:** *Option A*

**Explanation:**Here we need to decide between a z test and a t test. The sample size is 50 and the population standard deviation is unknown. Despite the sample size being moderate, the rule of thumb is to use a t test when <0 is unknown. Therefore, Option A, which selects a t test, is correct.

### Question 3

**Answer:** *Option B*

**Explanation:**This question evaluates the interpretation of a 99% confidence interval that does not contain the hypothesized mean of 70. Because the interval excludes 70, we reject the null hypothesis at ; = 0.01. Option B correctly states that we reject H € and conclude that the population mean is significantly different from 70.

### Question 4

**Answer:** *Option D*

**Explanation:**The problem involves a one sample t test with a two tailed alternative. The critical t-value at ; = 0.05 with 19 degrees of freedom is approximately 2.093. Option D lists the correct critical value and the decision rule.

### Question 5

**Answer:** *Option C*

**Explanation:**The question asks whether the assumption of normality is violated. The histogram shows a slight skew and the Q Q plot indicates deviations in the tails. Option C acknowledges these issues and recommends a non parametric test if the deviations are severe.

### Question 6

**Answer:** *Option A*

**Explanation:**The test statistic is calculated as t = (#0 - ;Â • / (s/" n). Plugging in the numbers yields t = 2.45. Option A lists this value and correctly interprets it as indicating evidence against the null hypothesis at the 0.05 significance level.

### Question 7

**Answer:** *Option B*

**Explanation:**The question requires computing the 95% confidence interval for a mean with a known population standard deviation. Since <0 is known and n = 40, we use the z distribution. Option B provides the correct z* value and the resulting interval.

### Question 8

**Answer:** *Option D*

**Explanation:**This question tests the interpretation of a p value. A p value of 0.001 is less than the typical ; = 0.05, so we reject H €. Option D correctly states that the result is statistically significant.

### Question 9

**Answer:** *Option C*

**Explanation:**The question involves calculating the effect size (Cohen's d). Using the formula d = (#0 - ;Â • / s, we get d = 0.8, which is considered a large effect size. Option C reflects this calculation and interpretation.

### Question 10

**Answer:** *Option B*

**Explanation:**The problem asks for the decision rule when using a one tailed test with ; = 0.01. The critical value for df = 14 is 2.624. Option B lists this value and states the correct rejection region.

### Question 11

**Answer:** *Option A*

**Explanation:**The question tests knowledge of the degrees of freedom for a t test. For a single sample of size 30, df = n - 1 = 29. Option A correctly identifies this.

### Question 12

**Answer:** *Option D*

**Explanation:**This question examines the interpretation of a 90% confidence interval that includes the null value of 50. Since the interval contains 50, we fail to reject H € at ; Ò ã à Option D captures this conclusion.

### Question 13

**Answer:** *Option C*

**Explanation:**The question involves calculating the margin of error for a mean with a known <2à Using ME = z* (<2ò!¦â'À we find ME = 1.96 * (10/" 25) = 3.92. Option C lists this value correctly.

### Question 14

**Answer:** *Option B*

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