DSST Statistics Practice Exam (Sample)

Study Guide

Everything you need from our exam experts!

Sample study guide. For the full version with hundreds of questions, visit: https://dssttatistics.examzify.com

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- **Practice answering questions under realistic conditions,**
- **Improve accuracy and speed,**
- **Review explanations to strengthen weak areas, and**
- **Approach the exam with greater confidence.**

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

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How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here’s how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don’t just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There’s no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

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Questions

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1. Number of ways to choose 3 from 10 when order does not matter?

A. P(10,3)

B. C(10,3)

C. 3!

D. 10^3

2. Which type of data uses descriptive terms to measure or classify things, not numerical values?

A. Quantitative data

B. Interval data

C. Qualitative data

D. Ordinal data

3. Which term describes the central point of a data set using a single representative value, with the mean as the most common example?

A. Dispersion

B. Central Tendency

C. Mean

D. Histogram

4. State the Central Limit Theorem in brief.

A. The distribution of sample means approaches normality as n grows, regardless of population distribution.

B. The distribution of raw data is always normal.

C. The mean of a sample equals the population mean exactly for any n.

D. The variance of sample means increases with sample size.

5. What does the chi-square test for independence assess?

A. Whether a sample comes from a normal distribution.

B. Whether two categorical variables are related.

C. Whether variances are equal across groups.

D. Whether there is a linear relationship.

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6. The value that splits a data set into two halves is called the

A. Mean

B. Median

C. Mode

D. Range

7. What does the slope represent in simple linear regression $y = \beta 0 + \beta 1\ x$?

A. The intercept value of y when x = 0.

B. The proportion of variance explained.

C. The average change in y for a one-unit increase in x.

D. The strength of the correlation.

8. What is the key concept in statistics that involves drawing a conclusion from available evidence?

A. Inference

B. Estimation

C. Hypothesis

D. Prediction

9. The probability of failing to reject a false null hypothesis is called the:

A. Type I error

B. p-value

C. Type II error

D. Significance level

10. Explain the 68-95-99.7 rule for the standard normal distribution.

A. About 68% within ±1σ, 95% within ±2σ, 99.7% within ±3σ of the mean.

B. About 68% within ±2σ, 95% within ±3σ, 99.7% within ±4σ.

C. About 68% within ±0.5σ, 95% within ±1.5σ, 99.7% within ±2.5σ.

D. Not applicable to the standard normal distribution.

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Answers

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1. B
2. C
3. B
4. D
5. B
6. B
7. C
8. A
9. C
10. A

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Explanations

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1. Number of ways to choose 3 from 10 when order does not matter?

A. P(10,3)

B. C(10,3)

C. 3!

D. 10^3

When order doesn't matter, you count using combinations. The number of ways to choose 3 from 10 without regard to order is 10 choose 3, written as C(10,3). Compute it as 10×9×8 divided by 3×2×1, which equals 120. So there are 120 ways. If order mattered, you'd be counting permutations (P(10,3) = 10×9×8 = 720). If repetition were allowed, it would be 10^3 = 1000. But for this scenario, the appropriate count is the combination, C(10,3).

2. Which type of data uses descriptive terms to measure or classify things, not numerical values?

A. Quantitative data

B. Interval data

C. Qualitative data

D. Ordinal data

Describe data that uses words rather than numbers. Qualitative data, also called categorical data, classifies objects by qualities or attributes using descriptive terms like color, type, brand, or flavor. It does not rely on numerical measurements, which is why it fits the idea of using non-numeric values to categorize or describe. While you might split qualitative data into nominal (no natural order) or ordinal (order matters) subtypes, both stay in the realm of categories rather than numeric measurements. In contrast, quantitative data uses numbers to measure things, so it isn't the correct fit for a question focused on non-numeric descriptions.

3. Which term describes the central point of a data set using a single representative value, with the mean as the most common example?

A. Dispersion

B. Central Tendency

C. Mean

D. Histogram

Central tendency describes the central point of a data set using a single representative value. The mean is the most common example of a measure of central tendency, calculated by adding all values and dividing by how many observations there are. It serves as the balance point around which the data cluster. The other concepts describe different ideas: dispersion is about how spread out the data are, and a histogram is a graphical display of the distribution, not a single representative value.

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4. State the Central Limit Theorem in brief.

A. The distribution of sample means approaches normality as n grows, regardless of population distribution.

B. The distribution of raw data is always normal.

C. The mean of a sample equals the population mean exactly for any n.

D. The variance of sample means increases with sample size.

The central idea is that, with independent, identically distributed observations of finite variance, the distribution of the sample means becomes approximately normal as the sample size grows. The mean of that sampling distribution equals the population mean, and its variance equals the population variance divided by the sample size, so the spread shrinks as n increases. This makes it possible to use normal-based methods for inference about the population mean even when the original population isn't normal, provided the sample size is large enough. The statement that raw data are always normally distributed isn't correct, since raw data can have many shapes. The mean of a sample equaling the population mean exactly for any n ignores sampling variability. And the variance of the distribution of sample means does not increase with sample size; it actually decreases, following sigma^2 / n.

5. What does the chi-square test for independence assess?

A. Whether a sample comes from a normal distribution.

B. Whether two categorical variables are related.

C. Whether variances are equal across groups.

D. Whether there is a linear relationship.

The main idea is that the chi-square test for independence checks whether two categorical variables are related rather than independent. You organize the data in a contingency table of observed counts for each combination of categories. If the variables are independent, the distribution of counts in each cell should follow what you'd expect from the marginal totals: the expected count for a cell is (row total × column total) divided by the grand total. You then compute the chi-square statistic by summing (observed minus expected) squared over the expected value for every cell. This statistic is compared to a chi-square distribution with degrees of freedom (number of rows − 1) × (number of columns − 1). A small p-value means the observed pattern of counts is unlikely under independence, so you conclude the variables are related; a large p-value suggests no evidence of association. Keep in mind this test is for categorical data and is nonparametric, unlike tests that assess normality, equal variances, or linear relationships. If the sample is small, some conditions about expected counts aren't met, in which case other methods like Fisher's exact test might be used.

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6. The value that splits a data set into two halves is called the

A. Mean

B. Median

C. Mode

D. Range

The value that splits a data set into two halves is the median. When the data are ordered from smallest to largest, the median sits at the middle and marks the point where half the observations are at or below it and half are at or above it. If there's an odd number of values, it's the exact middle value; if even, it's the average of the two central values. This makes the median a robust measure of center that isn't as influenced by extreme numbers as the mean. By contrast, the mean is the overall average of all values, which can be pulled toward outliers; the mode is simply the most frequent value; and the range reflects spread between the smallest and largest values, not a central point. Example: data 1, 2, 3, 100 have a median of (2 + 3) / 2 = 2.5, which lies between the two middle values and splits the data roughly into two halves.

7. What does the slope represent in simple linear regression y = β0 + β1 x?

A. The intercept value of y when x = 0.

B. The proportion of variance explained.

C. The average change in y for a one-unit increase in x.

D. The strength of the correlation.

In simple linear regression, the slope tells how much y is expected to change as x changes. Specifically, for each one-unit increase in x, the predicted value of y changes by β1 units. This is the average rate of change of y with respect to x along the fitted line (the derivative dy/dx for a linear model). The intercept is the value of y when x is zero, not the slope. The proportion of variance explained (R^2) describes how well the line fits the data, not how y changes per unit of x. The strength of the correlation describes how tightly x and y follow a linear pattern, but not the amount of change per unit of x. So the slope embodies the average change in y for a one-unit increase in x.

8. What is the key concept in statistics that involves drawing a conclusion from available evidence?

A. Inference

B. Estimation

C. Hypothesis

D. Prediction

Interpreting sample data to reach conclusions about a larger population is inference. It's the process of using available evidence to say what's likely true about the population behind the data. Inference is the broad activity, and estimation, hypothesis testing, and prediction are specific ways we apply it: estimation quantifies an unknown population parameter, hypothesis testing evaluates a claim about the population, and prediction forecasts future observations. Because the prompt describes drawing conclusions from evidence, inference is the best fit.

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9. The probability of failing to reject a false null hypothesis is called the:

A. Type I error

B. p-value

C. Type II error

D. Significance level

Failing to reject a false null hypothesis is a Type II error. It means there's really an effect or difference, but the test didn't detect it given the data and sample size. The chance of that happening is beta, and the complement (1 minus beta) is the test's power—the probability of correctly detecting a true effect. By contrast, a Type I error occurs when you reject a true null hypothesis, with probability alpha set by the significance level. The p-value measures how extreme the observed data are under the null and helps decide whether to reject, at the chosen alpha. Significance level is that threshold itself. So the described probability is Type II error.

10. Explain the 68-95-99.7 rule for the standard normal distribution.

A. About 68% within ±1σ, 95% within ±2σ, 99.7% within ±3σ of the mean.

B. About 68% within ±2σ, 95% within ±3σ, 99.7% within ±4σ.

C. About 68% within ±0.5σ, 95% within ±1.5σ, 99.7% within ±2.5σ.

D. Not applicable to the standard normal distribution.

The standard normal distribution, with mean 0 and standard deviation 1, follows the empirical rule: about 68% of observations lie within one standard deviation of the mean, about 95% lie within two standard deviations, and about 99.7% lie within three standard deviations. In other words, roughly 68% are between -1 and +1, 95% between -2 and +2, and 99.7% between -3 and +3. This is why the statement describing those intervals around the mean is the best description. The other options propose different ranges that don't match these percentages, or claim it doesn't apply to the standard normal, which isn't correct. More precise values are about 68.27%, 95.45%, and 99.73%, but the rounded rule captures the idea accurately.

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Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

https://dsststatistics.examzify.com

We wish you the very best on your exam journey. You've got this!

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