LAND SURVEYOR IN TRAINING (LSIT) PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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. **Datum conversions are accomplished by various methods. Complete datum conversion is based on seven parameter transformations that include:**

   A. Four translation parameters, two rotation parameters and a scale parameter

   B. Two translation parameters, three rotation parameters and a scale parameter

   C. Three translation parameters, three rotation parameters and a scale parameter

   D. One translation parameter, four rotation parameters and a scale parameter

2. **There are how many zones in the continental US according to the text?**

   A. 100

   B. 110

   C. 120

   D. 126

3. **Which system provides the geodetic datum for horizontal coordinates in this context?**

   A. Continuously Operating Reference Stations (CORS) supported by NGS.

   B. Local bench marks only.

   C. Elevation data from local level networks.

   D. Global Positioning System satellites.

4. **What is the primary purpose of an As-Built Survey?**

   A. Locate boundary monuments

   B. Locate structures and improvements on a parcel of land for mortgage purposes

   C. Determine flood zones

   D. Establish zoning

5. **What is the projection called when the scale is the same in any direction at a point?**

   A. Conformal

   B. Equal-distance

   C. Equal-area

   D. Isometric

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6. NAD27 and NAD83 are examples of which type of datum?

A. Geodetic datums

B. Horizontal datums

C. Tidal datums

D. Vertical datums

7. Laser scanning in surveying is primarily used to?

A. Produce only 2D floor plans.

B. Replace all ground control monuments.

C. Create detailed 3D representations and support BIM workflows.

D. Only measure a single line distance.

8. Which statement about GNSS equipment is true?

A. Ground-based receivers and antennas collect electronic radio signals from GNSS satellites.

B. GNSS signals can be collected by a single handheld unit without an antenna.

C. GNSS data collection can succeed without tracking satellites simultaneously.

D. Drones can replace ground-based GNSS receivers entirely.

9. Vertical datum data are gathered using which methods?

A. Tides with sea level measurements, geodetic surveying with different ellipsoid models used with the horizontal datum, and gravity measured with the geoid

B. Tides alone

C. Gravity measurements alone

D. Ellipsoid models used with the horizontal datum

10. When is a backsight reading typically taken during leveling?

A. After the instrument is set up and leveled.

B. Before setting up the instrument.

C. At turning points.

D. Only when the rod is at unknown elevation.

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Answers

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

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Explanations

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1. Datum conversions are accomplished by various methods. Complete datum conversion is based on seven parameter transformations that include:

A. Four translation parameters, two rotation parameters and a scale parameter

B. Two translation parameters, three rotation parameters and a scale parameter

C. Three translation parameters, three rotation parameters and a scale parameter

D. One translation parameter, four rotation parameters and a scale parameter

In 3D datum conversions, you need enough freedom to align both position and orientation between datums, plus adjust for overall size differences. The seven-parameter model achieves this by using three translations, three rotations, and a single scale factor. The three translations shift the origin along X, Y, and Z so coordinates can be placed in the new datum's origin. The three rotations account for small angular differences between the axes, aligning the orientation of the two systems. The scale parameter adjusts for any overall size difference between the datums, ensuring distances scale correctly. Together these seven independent adjustments describe the full rigid-body shift plus a uniform scale change, which is why this combination is the standard complete datum-conversion method. Fewer translations or rotations would leave misalignment uncorrected along one or more axes or orientation components, and more rotations would add unnecessary degrees of freedom without improving the fit.

2. There are how many zones in the continental US according to the text?

A. 100

B. 110

C. 120

D. 126

Zones are geographic segments defined to apply a specific projection or coordinate framework efficiently. The text you're studying sets up 110 zones for the continental United States to organize how coordinates are assigned and how distortion is managed within that system. This count helps you know which zone to use for a given area when performing calculations or mapping within that framework. Keep in mind that different texts or editions can use different totals depending on which areas are included (such as Alaska or Hawaii) or which datum the system uses, so the exact number can vary. In this material, 110 zones is the stated figure.

3. Which system provides the geodetic datum for horizontal coordinates in this context?

A. Continuously Operating Reference Stations (CORS) supported by NGS.

B. Local bench marks only.

C. Elevation data from local level networks.

D. Global Positioning System satellites.

Understanding how horizontal coordinates get their precise reference requires a stable, nationwide reference frame. The Continuously Operating Reference Stations network, supported by the National Geodetic Survey, provides that frame. By collecting GNSS data from many fixed stations and adjusting them together, it defines a consistent horizontal coordinate system (such as NAD83) used across the country. This network ties field measurements to a common datum, enabling accurate, comparable positions over time and distance. Local bench marks are individual physical markers and don't establish a national datum. Elevation data relates to vertical control, not horizontal reference. GPS satellites provide observations, but the datum itself comes from the reference-station network and its network-wide adjustment, not the satellites alone.

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4. What is the primary purpose of an As-Built Survey?

A. Locate boundary monuments

B. Locate structures and improvements on a parcel of land for mortgage purposes

C. Determine flood zones

D. Establish zoning

An as-built survey records the actual locations and dimensions of all structures and improvements after construction. Its main purpose is to provide an accurate, current record for the property owner and lenders, showing that everything has been built where approved and within property lines, setbacks, and easements. This verification is essential for mortgage financing because lenders want to confirm that the improvements exist as described and do not encroach on adjacent properties or restricted areas. The survey also serves as a reliable reference for future renovations or title work. It isn't used to locate boundary monuments, determine flood zones, or establish zoning, which are handled by boundary surveys, floodplain mapping, and zoning ordinances respectively.

5. What is the projection called when the scale is the same in any direction at a point?

A. Conformal

B. Equal-distance

C. Equal-area

D. Isometric

The main idea is how scale behaves around a point on a map projection. If the scale is the same in every direction at a point, tiny shapes are stretched equally in all directions there, which means angles are preserved locally. This property is the hallmark of a conformal projection: it preserves local shapes by keeping the directional scale isotropic at each point, even though the overall scale can vary from point to point across the map. So, the projection described by equal scaling in all directions at a point is conformal, because it ensures angles are preserved locally. Equal-distance would imply preserving distance from a central point along rays, which is a different constraint and doesn't guarantee angle preservation. Equal-area focuses on preserving areas rather than shapes, and isometric would require exact distances everywhere, which isn't achievable for a sphere-to-plane map.

6. NAD27 and NAD83 are examples of which type of datum?

A. Geodetic datums

B. Horizontal datums

C. Tidal datums

D. Vertical datums

These datums establish a reference surface and origin used to tie coordinates on the Earth to a mathematical model of its shape. NAD27 and NAD83 define different ellipsoids and anchor points, which changes how latitude and longitude are computed for any location. Because they specify the reference surface for horizontal positioning, they are geodetic datums. Tidal datums relate to sea level, and vertical datums relate to elevations or depths, so they're not what these NAD datums represent. NAD27 uses an old ellipsoid (Clarke 1866), while NAD83 uses a more modern ellipsoid (GRS80) aligned with geocentric models.

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7. Laser scanning in surveying is primarily used to?

A. Produce only 2D floor plans.

B. Replace all ground control monuments.

C. Create detailed 3D representations and support BIM workflows.

D. Only measure a single line distance.

Laser scanning captures a dense 3D point cloud of the scene, giving a precise digital representation of geometry, relationships, and even textures. That rich 3D data is what makes it ideal for creating detailed models that feed into BIM workflows, where the model can be used for design coordination, clash detection, quantity takeoffs, and facility management. The strength of laser scanning isn't just in making 2D plans or taking a single distance measurement; it's in capturing the entire environment in three dimensions so you can build accurate, executable digital representations. Ground control monuments are still used to reference and georeference the data, but the main value lies in producing comprehensive 3D representations that BIM and related workflows can rely on.

8. Which statement about GNSS equipment is true?

A. Ground-based receivers and antennas collect electronic radio signals from GNSS satellites.

B. GNSS signals can be collected by a single handheld unit without an antenna.

C. GNSS data collection can succeed without tracking satellites simultaneously.

D. Drones can replace ground-based GNSS receivers entirely.

GNSS surveying relies on a ground-based receiver paired with an antenna to capture the radio signals broadcast by satellites. The antenna is essential because it converts those faint electromagnetic waves into electrical signals that the receiver can process. Without an antenna, those signals cannot be collected, so the idea of a handheld unit functioning without an antenna isn't feasible. To determine position, the receiver needs measurements from multiple satellites at the same time (an epoch). Relying on signals from satellites at different times doesn't provide the simultaneous observations required for a reliable 3D fix with an unknown receiver clock, so the notion of successful data collection without tracking satellites simultaneously isn't accurate. Drones may carry GNSS receivers, but they don't replace ground-based GNSS infrastructure or the workflows that depend on stable base-rover relationships and corrections.

9. Vertical datum data are gathered using which methods?

A. Tides with sea level measurements, geodetic surveying with different ellipsoid models used with the horizontal datum, and gravity measured with the geoid

B. Tides alone

C. Gravity measurements alone

D. Ellipsoid models used with the horizontal datum

Vertical datums are realized by tying elevations to a surface that represents mean sea level, which is connected to the Earth's gravity field. This is done by combining tide measurements to establish mean sea level from coastal and ocean data, gravity data to define the geoid (the gravity-based reference surface close to mean sea level offshore), and geodetic surveying using ellipsoid models to relate the ellipsoidal height system to the vertical datum through appropriate transformations. In short, mean sea level anchors the surface, the geoid provides the gravity-based reference, and the ellipsoid-based horizontal framework is used to ensure the vertical and horizontal datums are consistent. Relying on tides alone lacks a global, stable reference; gravity alone defines the geoid but doesn't finish the connection to surveyed elevations; and ellipsoid models with the horizontal datum address horizontal positions rather than establishing the vertical reference by themselves.

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10. When is a backsight reading typically taken during leveling?

A. After the instrument is set up and leveled.

B. Before setting up the instrument.

C. At turning points.

D. Only when the rod is at unknown elevation.

Backsight readings are taken to establish the height of the instrument by comparing the line of sight to a point with a known elevation. After you set up the level and bring it to a level line, you first measure a backsight on a known point. This backsight establishes the height of the instrument (HI). With HI known, you then take foresight readings on points of unknown elevation to determine their elevations (Elevation of unknown = HI minus the foresight reading). So the typical timing is after the instrument is set up and leveled, using a known point for the backsight. The other options don't fit because you don't take a backsight before setup, it isn't tied to turning points specifically, and it isn't contingent on the rod being at unknown elevation.

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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://landsurveyorlsit.examzify.com

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

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