

GEODESY REFRESHER 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.

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!

Questions

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- 1. How are the P code and C/A code cycles characterized?**
 - A. The P code repeats every 2 weeks
 - B. The P code repeats every 12 weeks
 - C. The P code repeats every 38 weeks, with each week assigned to a different satellite
 - D. The P code repeats every 38 weeks, and each week is assigned to a different satellite
- 2. For first-order geodetic control, the average triangle closure should be which value?**
 - A. 1.0 arcseconds
 - B. 3 arcseconds
 - C. 5 arcseconds
 - D. 10 arcseconds
- 3. What is the angular distance measured along the hour circle from the celestial equator to the celestial body?**
 - A. Declination
 - B. Right Ascension
 - C. Polar Distance
 - D. Zenith Distance
- 4. In first-order geodetic control, the maximum triangle closure should not exceed how many arcseconds?**
 - A. 3 arcseconds
 - B. 1 arcsecond
 - C. 10 arcseconds
 - D. 0.5 arcseconds
- 5. What is the term for the difference in direction between Earth's gravity vector and a reference direction such as the normal to a reference ellipsoid?**
 - A. Deflection of the vertical
 - B. Declination
 - C. Azimuth
 - D. Inclination

6. Which term describes the intersection of the celestial sphere with a plane that passes through the sphere's center?
- A. Hour circle
 - B. Vertical circle
 - C. Great circle
 - D. Celestial equator
7. In the Philippines, geodetic azimuth is reckoned from which direction?
- A. South
 - B. North
 - C. East
 - D. West
8. Which statement correctly describes the relationship between gravitational and centrifugal forces?
- A. The gravitational force is stronger than the centrifugal force.
 - B. The centrifugal force is stronger than the gravitational force.
 - C. They are equal in magnitude.
 - D. Both forces are zero.
9. Which line at the observer coincides with the plumb line and is normal to the horizon?
- A. Observer's horizon
 - B. Observer's vertical
 - C. Zenith
 - D. Nadir
10. What capability does a six-channel GPS receiver provide?
- A. Track six satellites with a single signal processor
 - B. Track six satellites simultaneously with dedicated hardware per signal
 - C. Generate six separate navigation solutions
 - D. Support six different coordinate systems

Answers

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

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Explanations

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1. How are the P code and C/A code cycles characterized?

- A. The P code repeats every 2 weeks
- B. The P code repeats every 12 weeks
- C. The P code repeats every 38 weeks, with each week assigned to a different satellite
- D. The P code repeats every 38 weeks, and each week is assigned to a different satellite**

The P code is designed as a long, time-sharing sequence whose overall pattern stretches over many weeks. In this system, each week within a 38-week cycle is assigned to a different satellite, so the P-code signal for a given satellite is unique within that week but shifts with each successive week. After the full 38-week cycle, the pattern repeats, bringing the same weekly assignments back to the start. That's why this option describes the P code cycle length accurately: a 38-week repetition with each week tied to a distinct satellite. In contrast, the civilian C/A code operates on a much shorter timescale, repeating its pseudorandom sequence very quickly, which is why receivers can acquire it rapidly. The key point for the P code's behavior is the 38-week cycle with weekly satellite assignments, which is what makes the described option the best fit.

2. For first-order geodetic control, the average triangle closure should be which value?

- A. 1.0 arcseconds**
- B. 3 arcseconds
- C. 5 arcseconds
- D. 10 arcseconds

Triangle closure error is the difference between the sum of the measured angles in a triangle and the theoretical 180 degrees. In first-order geodetic control, angle measurements are extremely precise, and after adjustment the average angular misclosure per triangle is about 1 arcsecond. This tiny value shows the network is internally consistent and well tied to the reference frame. Larger misclosures, like a few arcseconds or more, would indicate less precision or issues needing re-measurement or re-adjustment. Therefore, the expected value for first-order control is around 1 arcsecond.

3. What is the angular distance measured along the hour circle from the celestial equator to the celestial body?

- A. Declination**
- B. Right Ascension
- C. Polar Distance
- D. Zenith Distance

Declination is the angular distance north or south of the celestial equator, measured along the hour circle that passes through the celestial body. This is exactly how far the object sits from the celestial equator on its vertical circle, with north being positive and south negative. Right ascension, on the other hand, is measured along the celestial equator from the vernal equinox to the object's hour-angle crossing, not from the equator to the body along the hour circle. Polar distance is the angle from the celestial pole to the object (related by $p = 90^\circ - \text{declination}$), and zenith distance is the angle from the observer's zenith to the object (dependent on latitude and altitude). So the described angular distance corresponds to declination.

4. In first-order geodetic control, the maximum triangle closure should not exceed how many arcseconds?

- A. 3 arcseconds
- B. 1 arcsecond
- C. 10 arcseconds
- D. 0.5 arcseconds

In first-order geodetic control, you aim for extremely small angular inconsistencies in each triangle of the network. The triangle closure, or angular misclosure, is how far the measured angles deviate from summing to exactly 180 degrees. Since arcseconds are a tiny angular unit (one arcsecond is 1/3600 of a degree), keeping misclosure to a few arcseconds ensures the network is internally consistent enough to be reliable after adjustment. The commonly accepted limit for a first-order network is about 3 arcseconds. This threshold balances practicality with precision: it's tight enough to maintain high accuracy, but not so strict that routine measurements would be repeatedly flagged as errors. If a triangle shows a larger misclosure, it indicates problematic measurements or geometry and typically triggers re-measurement or re-observation. Choices requiring much smaller limits (like 0.5 or 1 arcsecond) are more stringent than standard for first-order, while a threshold as large as 10 arcseconds would be too lax for keeping the network trustworthy.

5. What is the term for the difference in direction between Earth's gravity vector and a reference direction such as the normal to a reference ellipsoid?

- A. Deflection of the vertical
- B. Declination
- C. Azimuth
- D. Inclination

The term describes the angular difference between the direction of local gravity (the true vertical) and the normal to the reference ellipsoid. Because the gravity field is influenced by rotation and local mass variations, the plumb line does not line up perfectly with the ellipsoid's normal. This misalignment is the deflection of the vertical, often with two components in the meridian (north-south) and prime-vertical (east-west) directions. The other terms refer to magnetic directions or directions in the horizontal plane, not to the difference between gravity and the ellipsoid normal.

6. Which term describes the intersection of the celestial sphere with a plane that passes through the sphere's center?

- A. Hour circle
- B. Vertical circle
- C. Great circle
- D. Celestial equator

A great circle is the intersection of the celestial sphere with a plane that passes through the sphere's center. Because the plane goes through the center, the resulting circle is the largest possible on the sphere, with the same radius as the sphere itself. This concept applies to the sky as well: the celestial equator is a specific example of a great circle, and other familiar lines on the sky such as hour circles (lines of constant right ascension) and vertical circles are also great circles. If the cutting plane did not pass through the center, the intersection would be a smaller circle called a small circle. So the general term for this intersection is great circle.

7. In the Philippines, geodetic azimuth is reckoned from which direction?

- A. South**
- B. North
- C. East
- D. West

Geodetic azimuth in the Philippines is measured from true South. This means the reference direction is the South meridian, and angles are read clockwise from there. For example, a line pointing East would have an azimuth of 270°, West would be 90°, North 180°, and South 0°. This convention keeps azimuth values straightforward to read in the field and aligns with local surveying practice, which is why the correct answer is South.

8. Which statement correctly describes the relationship between gravitational and centrifugal forces?

- A. The gravitational force is stronger than the centrifugal force.**
- B. The centrifugal force is stronger than the gravitational force.
- C. They are equal in magnitude.
- D. Both forces are zero.

Gravity pulls inward toward the center, while the centrifugal force pushes outward and grows with distance from the rotation axis. Near Earth's surface, gravity is much larger in magnitude than the centrifugal effect due to Earth's rotation. For example, gravity is about 9.81 m/s^2 , while the centrifugal acceleration at the equator from Earth's rotation is only about 0.03 m/s^2 . That means the gravitational force greatly dominates, with the centrifugal force slightly reducing apparent weight but not eliminating gravity. The centrifugal force is a fictitious force that appears in a rotating frame; it helps explain why objects feel lighter as the rotation rate increases, but it doesn't surpass gravity under normal conditions here. Only in a very specific balance of radius and rotation speed would the two have equal magnitude, which corresponds to orbital scenarios in the right frame of reference.

9. Which line at the observer coincides with the plumb line and is normal to the horizon?

- A. Observer's horizon
- B. Observer's vertical**
- C. Zenith
- D. Nadir

The line that coincides with the plumb line and is perpendicular to the horizon is the observer's vertical. The plumb line points in the direction of local gravity, defining the local vertical. The horizon is a plane tangent to the Earth at the observer and is perpendicular to that vertical. So the line through the observer along gravity, i.e., the vertical, is the one normal to the horizon. The zenith and nadir are points directly above and below, not lines.

10. What capability does a six-channel GPS receiver provide?

- A. Track six satellites with a single signal processor
- B. Track six satellites simultaneously with dedicated hardware per signal**
- C. Generate six separate navigation solutions
- D. Support six different coordinate systems

The ability being tested is parallel tracking of multiple satellites using separate processing paths. Each channel handles one satellite's signal, with its own processing resources, so a six-channel receiver can track six satellites at the same time. That dedicated hardware per signal is what makes simultaneous tracking possible, rather than trying to juggle all signals with a single processor. From all the tracked satellites, the receiver computes a single navigation solution, not six separate solutions. Coordinating six different coordinate systems isn't related to how many satellites are tracked.

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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://geodesyrefresher.examzify.com>

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

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