RADIO NAVIGATION LEVEL 4 PRACTICE TEST (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. In a hybrid navigation system, how is data from multiple sources used?

A. Data from two or more sources are electronically compared and the best information is used.

B. Data from a single source is used exclusively.

C. The system uses manual input to select data.

D. All inputs are averaged before selection.

2. For an AWR with a 5-degree beamwidth, the tilt that yields cloud returns at or above the observer's level is:

A. 5 Degrees Uptilt

B. 0 Degrees Tilt

C. 2.5 Degrees Uptilt

D. 1 Degree Uptilt

3. Using the 1 in 60 rule calculate the height on a 3 degree glide path of an aircraft 4.5 NM from touchdown?

A. 1300 ft

B. 1370 ft

C. 1500 ft

D. 1700 ft

4. In a Cathode Ray Tube, the grid is used to:

A. control the brightness

B. focus the beam

C. control the brilliance

D. accelerate electrons

5. What is the modulation rate for the ILS outer marker tone?

A. 2 dashes per second

B. 1 dash per second

C. 3 dashes per second

D. 4 dashes per second

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6. Which navigation aid provides distance information without angular bearing information?

A. Distance Measuring Equipment

B. VOR

C. ILS

D. DECCA

7. Referring to DME during the initial stage of the search pattern before lock-on

A. 150 pulses each second

B. 60 pulses each second

C. 100 pulses each second

D. 300 pulses each second

8. A VOR navigation example: An aircraft is on a VOR radial of 235°, heading 003° (M), with OBS set to 060. What are the correct indications?

A. FROM, Half-scale deflection to the left

B. FROM, Full-scale deflection to the right

C. TO, Half-scale deflection to the left

D. TO, Full-scale deflection to the right

9. In a 2D RNAV leg from WP1 to WP2, the range readout will be which value given the following: distance WP1–WP2 is 47 nm and remaining to WP2 is 25 nm?

A. 25 nm

B. 32 nm

C. 47 nm

D. 60 nm

10. In a primary radar using a pulse technique, the ability to discriminate between targets in azimuth is primarily a function of which parameter?

A. Range resolution

B. Azimuth accuracy

C. Pulse repetition frequency

D. Beam width

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Answers

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

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Explanations

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1. In a hybrid navigation system, how is data from multiple sources used?

A. Data from two or more sources are electronically compared and the best information is used.

B. Data from a single source is used exclusively.

C. The system uses manual input to select data.

D. All inputs are averaged before selection.

The main idea is that, in a hybrid navigation setup, multiple data inputs are available but the operator keeps control over which source to trust. This approach lets the pilot decide which data to use when sources disagree, leveraging their knowledge of current conditions and source reliability. By manually selecting the data, the navigator maintains clear, intentional control over the navigation solution, which is crucial when integrity or availability of some sources may be in question. If all sources were automatically compared and the system chose the best information, the operator would have less direct control, and in tricky environments automatic decisions could be confusing or inappropriate. Relying on a single source defeats the redundancy purpose of a hybrid system, and averaging all inputs before selecting a value can blur important distinctions or delays.

2. For an AWR with a 5-degree beamwidth, the tilt that yields cloud returns at or above the observer's level is:

A. 5 Degrees Uptilt

B. 0 Degrees Tilt

C. 2.5 Degrees Uptilt

D. 1 Degree Uptilt

The main idea is how the radar beam is shaped and how tilting moves the area you're "looking" at. AWR's beamwidth is 5 degrees, so the radar beam isn't a single ray but a cone about the antenna axis that extends 2.5 degrees above and 2.5 degrees below the centerline. To see cloud returns that are at or above your own altitude, you want the lower edge of that beam to line up with your level. Tilting the antenna up by 2.5 degrees places the bottom of the beam right at your altitude, so clouds at your level or higher fall into the beam and produce returns. Tilting less would look more below your level, and tilting more would push your coverage higher than your level, making you miss near-your-altitude returns. That's why 2.5 degrees uptilt is the best choice.

3. Using the 1 in 60 rule calculate the height on a 3 degree glide path of an aircraft 4.5 NM from touchdown?

A. 1300 ft

B. 1370 ft

C. 1500 ft

D. 1700 ft

On a glide path, the height above touchdown is found from the slope angle: height = horizontal distance × tan(angle). For a 3° glide slope, tan(3°) is about 0.0524, but a common quick rule of thumb is to use roughly 0.05 for mental math. The aircraft is 4.5 NM from touchdown. Convert distance to feet: 4.5 NM × 6,076 ft/NM ≈ 27,342 ft. Multiply by the quick factor: 27,342 × 0.05 ≈ 1,367 ft, which rounds to about 1,370 ft. So the height on the 3° glide path at 4.5 NM is about 1,370 ft. While a more exact calculation using tan(3°) gives around 1,435 ft, the estimated value from the rule of thumb matches the given option.

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4. In a Cathode Ray Tube, the grid is used to:

A. control the brightness

B. focus the beam

C. control the brilliance

D. accelerate electrons

In a CRT, what you see on the screen—the brightness of the spot or image—depends on how many electrons are actually reaching the phosphor. The grid acts as the gate that controls that electron flow. By applying a negative bias to the control grid, you repel some electrons back toward the cathode, reducing the beam current and making the spot dimmer. Making the grid less negative (or more positive) allows more electrons to reach the phosphor, increasing brightness. So the grid's job is to regulate the electron current, and that directly sets how bright the display appears. Focusing and accelerating the beam are handled by other electrodes: focusing concentrates the beam, while the anode voltage (and sometimes an accelerating grid) speeds it up.

5. What is the modulation rate for the ILS outer marker tone?

A. 2 dashes per second

B. 1 dash per second

C. 3 dashes per second

D. 4 dashes per second

Markers on an ILS transmit tones that are distinguished by both frequency and how quickly the tone is turned on and off. The outer marker uses a 400 Hz tone that is modulated so you hear two audible bursts each second. That two-bursts-per-second pattern is what identifies the outer marker on the avionics audio receiver. The other markers use higher frequencies and faster modulation rates, which you'd hear as three bursts per second for the middle marker and six bursts per second for the inner marker. So the modulation rate you'd expect for the outer marker tone is two dashes per second.

6. Which navigation aid provides distance information without angular bearing information?

A. Distance Measuring Equipment

B. VOR

C. ILS

D. DECCA

Distance Measuring Equipment provides distance information by measuring the round trip time of a radio signal between the aircraft and a ground station, giving slant range in nautical miles. It does not supply any angular bearing, so you can know how far you are from the station but not the direction. This makes it the right choice when the question asks for distance information without angular bearing. In practice, DME is often paired with a bearing source like VOR to give both range and direction (VOR/DME). The other aids focus on directional information or other types of guidance: VOR provides azimuth, ILS offers localizer and glide slope guidance for approaches, and DECCA is a different system with its own navigation concept, not just a simple distance readout.

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7. Referring to DME during the initial stage of the search pattern before lock-on

A. 150 pulses each second

B. 60 pulses each second

C. 100 pulses each second

D. 300 pulses each second

During DME operation, the distance is determined by the timing of the aircraft's interrogation and the ground station's reply. In the initial search pattern, you want to acquire a signal quickly, so the system uses a high pulse rate to rapidly probe the channel and solicit responses from the ground station. A rate of 150 pulses per second provides the fastest updates, helping to establish lock faster. Once the ground station is locked in and a stable range reading is available, the rate slows to a level like 60 pulses per second to maintain a steady display and minimize unnecessary channel activity. The higher or lower rates outside this phase don't support the same quick lock or stable tracking in the initial search.

8. A VOR navigation example: An aircraft is on a VOR radial of 235°, heading 003° (M), with OBS set to 060. What are the correct indications?

A. FROM, Half-scale deflection to the left

B. FROM, Full-scale deflection to the right

C. TO, Half-scale deflection to the left

D. TO, Full-scale deflection to the right

The essential idea is understanding how a VOR OBS and the CDI indicate your relation to the chosen course and the station. Being on a VOR radial of 235° means the line from the station to your position runs at 235°. The direction from your aircraft back to the station is the reciprocal, 055°. With the OBS set to 060°, you're aiming to fly a 060° course, and you're 5° off that course to the left, since 055° (toward the station) is 5° left of 060°. Because the station lies ahead on your chosen course (the angle between your bearing to the station and the course is only 5°, well within 90°), the TO indication is shown. The CDI will deflect toward the side you must steer to return to the course; being 5° left of the desired course, the deflection is toward the left. At about 5° off, that deflection is half-scale. So you'd see: TO with a half-scale deflection to the left.

9. In a 2D RNAV leg from WP1 to WP2, the range readout will be which value given the following: distance WP1–WP2 is 47 nm and remaining to WP2 is 25 nm?

A. 25 nm

B. 32 nm

C. 47 nm

D. 60 nm

In a 2D RNAV leg, the range readout shows the distance left to reach the next waypoint. It's the distance to go to WP2, not the total length of the leg. Here, the leg from WP1 to WP2 is 47 nm long, and you have 25 nm remaining to WP2. Therefore, the range readout is 25 nm. This reflects your current position along the leg, i.e., how far you still must fly to reach WP2; the 47 nm is the full distance of the leg, not what you still owe. In 2D RNAV, measurements are horizontal, so altitude doesn't alter this distance.

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10. In a primary radar using a pulse technique, the ability to discriminate between targets in azimuth is primarily a function of which parameter?

A. Range resolution

B. Azimuth accuracy

C. Pulse repetition frequency

D. Beam width

Discriminating targets in azimuth is governed by angular resolution, which is set by how narrow the radar's beam is. The antenna's beam width determines how finely you can distinguish targets that lie at different angles. A narrow beam illuminates a smaller slice of the sky, so two targets separated in azimuth are more likely to fall into separate parts of the beam and be detected as distinct objects. If the beam is wide, both targets may sit inside the same illuminated region and appear as a single return. Range resolution is about how far apart targets are along the line of sight, driven by pulse length, not by angle. Pulse repetition frequency affects how far you can uniquely identify targets in range (and the rate of update), but not how well you can separate targets by angle. Azimuth accuracy refers to how precisely you can measure the bearing of a single target, which improves with better sampling and processing but does not itself improve the ability to separate two targets unless the beam is sufficiently narrow. So, the primary parameter governing azimuth discrimination is the beam width—the narrower the beam, the better the ability to distinguish targets in azimuth.

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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://radionavlevel4.examzify.com

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

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