

# AVIXA AV MATH 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.

# 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. What does the term "impedance" refer to in AC circuits?**
  - A. Resistance only.
  - B. Total opposition to current flow, including resistance and reactance.
  - C. Current flow measurement.
  - D. Voltage drop in resistors.
- 2. When wiring multiple loudspeakers in parallel, what is a significant advantage of this configuration?**
  - A. Increased impedance
  - B. Higher total power requirement
  - C. Reduced risk of overloading
  - D. Increased total output level
- 3. How is power related to voltage and resistance in an audio context?**
  - A. Power increases with lower resistance only
  - B. Power is independent of voltage and resistance
  - C. Power equals voltage squared divided by resistance
  - D. Power is voltage times resistance
- 4. What image quality does Passive Viewing content provide compared to Full Motion content?**
  - A. Better color rendition
  - B. Clearer details
  - C. Higher resolution
  - D. Broader angle
- 5. What is the purpose of using low-pass and high-pass filters?**
  - A. To enhance overall audio clarity
  - B. To allow frequencies above (high-pass) or below (low-pass) a certain cutoff frequency to pass while attenuating the others
  - C. To increase volume levels
  - D. To create a stereo sound

6. What happens to the sound pressure level as the distance from the source increases in an open environment?
- A. It increases
  - B. It remains constant
  - C. It decreases
  - D. It fluctuates
7. What signifies a short circuit in electrical terms?
- A. An unintended low-resistance connection.
  - B. A proper grounding of the circuit.
  - C. A circuit operating at full load.
  - D. A safe connection between devices.
8. Given a screen size of 216.5 inches wide and a 1.78:1 aspect ratio, how is the height of the projected image calculated?
- A. By calculating width times aspect ratio
  - B. By dividing width by aspect ratio
  - C. By adding width to aspect ratio
  - D. By multiplying width with aspect ratio
9. What does the term "reactance" refer to in an AC circuit?
- A. Resistance to power supply fluctuations.
  - B. The opposition to current flow caused by capacitors and inductors.
  - C. The increase in power consumption over time.
  - D. The measure of energy stored in a magnetic field.
10. What impact does increasing the sampling rate have on audio recordings?
- A. It reduces file sizes significantly
  - B. It captures higher frequencies and improves fidelity
  - C. It makes recordings play slower
  - D. It eliminates background noise



## **Answers**

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

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## **Explanations**

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## 1. What does the term "impedance" refer to in AC circuits?

- A. Resistance only.
- B. Total opposition to current flow, including resistance and reactance.**
- C. Current flow measurement.
- D. Voltage drop in resistors.

*Impedance in AC circuits represents the total opposition that a circuit presents to the flow of alternating current. This opposition comprises both resistance, which is the opposition to direct current flow, and reactance, which arises from the inductive and capacitive elements in the circuit. The inclusion of reactance is particularly significant because it accounts for how AC circuits behave differently from DC circuits – inductors and capacitors can store and release energy, affecting the phase relationship between voltage and current. Understanding impedance is critical in AC circuit analysis, as it helps determine how much current will flow for a given voltage according to Ohm's law applied in the context of AC. Impedance is commonly expressed as a complex number, where the real part represents resistance and the imaginary part represents reactance. This comprehensive understanding of impedance allows engineers and technicians to design and troubleshoot AC circuits effectively, ensuring the desired performance of electrical systems.*

## 2. When wiring multiple loudspeakers in parallel, what is a significant advantage of this configuration?

- A. Increased impedance
- B. Higher total power requirement
- C. Reduced risk of overloading**
- D. Increased total output level

*Wiring multiple loudspeakers in parallel has the significant advantage of reducing the risk of overloading the amplifier. In a parallel configuration, the total impedance of the speaker load decreases, which may seem counterintuitive but actually distributes the amplifier's output across multiple speakers. This distribution allows the amplifier to operate more efficiently since the load is shared among the connected speakers. By reducing the load on each individual speaker, and since amplifiers are designed to deliver power safely within certain limits, the parallel setup allows for higher overall power handling without stressing the amplifier. Additionally, if one speaker were to fail or short out, the remaining speakers in the circuit would still operate, thereby limiting the potential for overloading the system as a whole. The other options do not accurately reflect the benefits of a parallel speaker configuration. For example, using multiple speakers does not increase the total impedance but typically reduces it, nor does it inherently lead to a higher total power requirement. It can increase the total output level to an extent, but the primary advantage remains in the reduced risk of overloading the amplifier.*

### 3. How is power related to voltage and resistance in an audio context?

- A. Power increases with lower resistance only
- B. Power is independent of voltage and resistance
- C. Power equals voltage squared divided by resistance
- D. Power is voltage times resistance

*In an audio context, power is calculated using the relationship between voltage and resistance as described by Ohm's Law. The formula that indicates how power relates to voltage and resistance is given by the equation: Power (P) = Voltage (V) squared divided by Resistance (R). This reflects the principle that, for a given resistance, increasing the voltage will increase the power significantly, because power is proportional to the square of the voltage. This means that small increases in voltage can lead to much larger increases in power, emphasizing the role of voltage in determining the power output in audio systems. This equation is particularly important in audio applications where amplifiers and other equipment need to manage power to ensure they operate efficiently and safely without damage. It highlights that the design and quality of audio equipment must consider both the voltage supplied and the resistance of the components involved to achieve optimal power delivery.*

### 4. What image quality does Passive Viewing content provide compared to Full Motion content?

- A. Better color rendition
- B. Clearer details
- C. Higher resolution
- D. Broader angle

*Passive viewing content typically refers to materials designed for viewing in a static way, such as photographs or infographics, which can indeed provide better color rendition. This is primarily because passive content often focuses on high-quality still images where artists and creators have more control over color accuracy and vibrancy, allowing for refined color manipulation and presentation. In contrast, full motion content, like videos, often prioritizes frame rates and the fluidity of motion over static detail, potentially leading to compromises in color quality due to compression methods and varying display capabilities during playback. While full motion content can also have vivid colors, achieving optimal color rendition can be more challenging as the focus shifts to the moving elements rather than the static color fidelity of a single frame. Other aspects of image quality such as detail clarity, resolution, and viewing angles can vary depending on the medium, and they do not inherently favor passive viewing over full motion content as much as color rendition does. Thus, passive viewing stands out for the richness and accuracy of its colors when comparing the two formats.*

## 5. What is the purpose of using low-pass and high-pass filters?

- A. To enhance overall audio clarity
- B. To allow frequencies above (high-pass) or below (low-pass) a certain cutoff frequency to pass while attenuating the others**
- C. To increase volume levels
- D. To create a stereo sound

*The purpose of using low-pass and high-pass filters is to allow frequencies above a specific cutoff frequency (for high-pass filters) or below a certain cutoff frequency (for low-pass filters) to pass through while attenuating frequencies that fall outside of this range. This selective frequency manipulation is crucial in various audio applications, such as ensuring that only desired sound frequencies reach the speakers or recording devices, thus improving sound quality and reducing unwanted noise. For example, a low-pass filter can remove high-frequency noise from a signal, ensuring that only the lower frequencies are amplified or recorded. Conversely, a high-pass filter would cut off low-frequency sounds, which can be particularly useful in vocal recordings to eliminate rumble and maintain clarity. Understanding how these filters operate allows audio professionals to achieve precise control over sound, ensuring the best possible audio experience in various environments.*

## 6. What happens to the sound pressure level as the distance from the source increases in an open environment?

- A. It increases
- B. It remains constant
- C. It decreases**
- D. It fluctuates

*In an open environment, the sound pressure level decreases as the distance from the source increases. This decrease is characterized by what is known as the inverse square law, which states that the intensity of sound (and thus the sound pressure level) diminishes proportionally to the square of the distance from the source. As sound waves propagate from a point source, they spread out in a spherical manner. The energy carried by these sound waves is distributed over an increasingly larger area as the distance increases. Consequently, the pressure of the sound waves—measured in decibels—drops because there is less energy per unit area at greater distances from the source. In practical applications, this means that for every doubling of the distance from a sound source, you can expect a decrease of approximately 6 dB in sound pressure level. Therefore, as one moves further away from the sound source in an open environment, the perception of that sound becomes quieter, demonstrating a clear decrease in sound pressure level.*

## 7. What signifies a short circuit in electrical terms?

**A. An unintended low-resistance connection.**

B. A proper grounding of the circuit.

C. A circuit operating at full load.

D. A safe connection between devices.

*A short circuit in electrical terms is characterized by an unintended low-resistance connection that allows current to flow along an unintended path. This can lead to excessive current flowing through the circuit, which may cause overheating, equipment damage, or even fires. This condition typically occurs when two points in a circuit that should not be connected are inadvertently joined, resulting in a lower resistance path than the intended circuit. The other options describe scenarios that do not align with the definition of a short circuit. Proper grounding refers to a safe and intentional connection designed to redirect excess current safely into the earth. A circuit operating at full load means that it is functioning as intended within its designed parameters and is not indicative of a fault or short. Lastly, a safe connection between devices also implies that the connections are functioning correctly and are not creating unintended pathways for electrical current.*

## 8. Given a screen size of 216.5 inches wide and a 1.78:1 aspect ratio, how is the height of the projected image calculated?

A. By calculating width times aspect ratio

**B. By dividing width by aspect ratio**

C. By adding width to aspect ratio

D. By multiplying width with aspect ratio

*To calculate the height of a projected image when given the width and the aspect ratio, the correct approach involves using the aspect ratio to correctly relate width to height. The aspect ratio of 1.78:1 indicates that for every 1.78 units of width, there is 1 unit of height. In practical terms, to find the height, you take the width and divide it by the aspect ratio. In this case, the width is 216.5 inches. Therefore, the height is calculated by taking 216.5 inches and dividing it by 1.78. This division gives you the height that maintains the desired aspect ratio with respect to the given width. Using the aspect ratio in the correct manner ensures that the dimensions of the projected image will fit perfectly to the intended display specifications, resulting in a correctly proportioned output. Calculation methods like multiplying or adding wouldn't yield the required height that corresponds to the width and aspect ratio together.*

## 9. What does the term "reactance" refer to in an AC circuit?

A. Resistance to power supply fluctuations.

**B. The opposition to current flow caused by capacitors and inductors.**

C. The increase in power consumption over time.

D. The measure of energy stored in a magnetic field.

*The term "reactance" in an AC circuit specifically refers to the opposition that capacitors and inductors present to the flow of alternating current. This opposition is not due to resistance but rather to the stored energy in these components. Capacitors store energy in the form of an electric field, while inductors store energy in a magnetic field. The unique properties of capacitors and inductors cause the current and voltage to be out of phase with each other, resulting in a kind of opposition that is frequency-dependent. This means that reactance varies with the frequency of the AC signal, a crucial aspect to consider when analyzing AC circuits. Understanding reactance is essential when designing circuits because it impacts the overall impedance, which is the total opposition to current flow in an AC system, and thus affects performance, efficiency, and power factor in electrical systems.*

**10. What impact does increasing the sampling rate have on audio recordings?**

- A. It reduces file sizes significantly
- B. It captures higher frequencies and improves fidelity**
- C. It makes recordings play slower
- D. It eliminates background noise

*Increasing the sampling rate in audio recordings has a significant impact on the quality and fidelity of the sound captured. The sampling rate refers to how often the audio signal is sampled per second, measured in Hertz (Hz). A higher sampling rate means more samples are taken of the audio signal in a given period, which allows for a more accurate representation of the sound wave. One of the key benefits of a higher sampling rate is its ability to capture higher frequencies that may be present in the audio. Human hearing generally ranges from about 20 Hz to 20 kHz; thus, increasing the sampling rate beyond the Nyquist limit (which is twice the highest frequency you want to capture) enables the ability to record frequencies above this range. As a result, this higher sampling can lead to improved audio fidelity, resulting in more accurate sound reproduction, detail, and richness in the recordings. This is particularly important in professional audio applications where the quality of sound is paramount. The other options do not align with how sampling rates function; for instance, increasing the sampling rate does not reduce file sizes significantly, make recordings play slower, or eliminate background noise. Instead, while a higher sampling rate can lead to larger file sizes due to more data being captured, it is essential for*



## 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](mailto:hello@examzify.com).

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

<https://avixaavmath.examzify.com>

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

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