MESA ENTRANCE 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. What is the simplified form of 2(3a - 5) + a?

A. 8a - 10

B. 7a - 5

C. 6a - 10

D. 7a - 10

2. What does MCD stand for?

A. Maintenance

B. Minimum

C. Lavatory

D. Main Cabin Door

3. A circle has a diameter of 8. Which pair correctly describes its radius and circumference?

A. Radius = 8; Circumference = 16π

B. Radius = 4; Circumference = 8π (≈25.13)

C. Radius = 2; Circumference = 4π

D. Radius = 4; Circumference = 16π

4. A neutral solution has a pH of 7. Which statement is true?

A. It is acidic

B. It is neutral and has pH 7

C. It is basic

D. It is strongly acidic

5. Which acronym stands for National Transportation Safety Board?

A. National Transportation Safety Board

B. National Transport Safety Board

C. National Transportation Service Board

D. National Transportation Safety Bureau

6. The sum of the interior angles of a pentagon is

A. 360 degrees

B. 720 degrees

C. 540 degrees

D. 900 degrees

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7. If the tone of a paragraph is sarcastic, what is the author's attitude?

A. Mocking or ironic attitude

B. Cheerful tone

C. Neutral attitude

D. Respectful tone

8. Which acronym corresponds to Federal Aviation Regulation?

A. FAA

B. FO

C. FAR

D. GPU

9. What is Newton's second law of motion?

A. F = ma

B. F = mv

C. v = at

D. p = mv

10. What is the 24-hour time for 3:00 PM?

A. 1500

B. 1400

C. 1600

D. 1700

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Answers

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

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Explanations

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1. What is the simplified form of 2(3a - 5) + a?

A. 8a - 10

B. 7a - 5

C. 6a - 10

D. 7a - 10

Distributing through the parentheses and combining like terms. Multiply 2 by each term inside: 2(3a) gives 6a and 2*(-5) gives -10, so you have 6a - 10, then add the remaining a to get 6a - 10 + a. Combine the a terms to get 7a, with the constant -10 remaining. Since 7a and -10 are not like terms, the expression cannot be simplified further. The final result is 7a - 10.*

2. What does MCD stand for?

A. Maintenance

B. Minimum

C. Lavatory

D. Main Cabin Door

In aviation, door labels use concise abbreviations to quickly identify where a door is and how it's used. MCD refers to the Main Cabin Door—the primary door used for passenger boarding and for evacuation if needed. This designation points to the door closest to where passengers enter the cabin, rather than a service door or a lavatory door. The other words listed don't describe the main passenger entry, so they aren't the correct expansion of the acronym.

3. A circle has a diameter of 8. Which pair correctly describes its radius and circumference?

A. Radius = 8; Circumference = 16π

B. Radius = 4; Circumference = 8π (≈25.13)

C. Radius = 2; Circumference = 4π

D. Radius = 4; Circumference = 16π

The radius is half of the diameter, so with a diameter of 8 the radius is 4. The circumference is 2π times the radius, so C = 2π(4) = 8π. Numerically, 8π is about 25.13. This pair fits the circle's size derived from the given diameter. Other options would require different radii or circumferences that don't match a diameter of 8 (for example, a radius of 8 implies a diameter of 16, and a circumference of 16π would correspond to that larger circle).

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4. A neutral solution has a pH of 7. Which statement is true?

A. It is acidic

B. It is neutral and has pH 7

C. It is basic

D. It is strongly acidic

On the pH scale, 7 is the balance point between acidity and basicity. The pH of a solution is the negative logarithm of the hydrogen ion concentration, so neutral solutions have equal amounts of hydrogen ions and hydroxide ions. For water at room temperature, that balance corresponds to [H+] about 1 × 10^-7 M, giving a pH of 7. Values below 7 mean more H+ and a shift toward acidity, while values above 7 mean more OH- and a shift toward basicity. So the statement that a neutral solution has a pH of 7 is true. The other descriptions—acidic, strongly acidic, or basic—don't fit because they imply pH values on the wrong side of 7.

5. Which acronym stands for National Transportation Safety Board?

A. National Transportation Safety Board

B. National Transport Safety Board

C. National Transportation Service Board

D. National Transportation Safety Bureau

Acronyms are formed from the initial letters of each word in a full name. NTSB comes from National Transportation Safety Board, which is the four-word title. The correct choice matches that exact expansion, because it uses Transportation (not Transport), Safety (not Service), and Board (not Bureau). The other options change one or more words, so they wouldn't produce the same acronym. The National Transportation Safety Board is the U.S. agency that investigates transportation accidents.

6. The sum of the interior angles of a pentagon is

A. 360 degrees

B. 720 degrees

C. 540 degrees

D. 900 degrees

The sum of interior angles of any simple polygon with n sides is (n−2)×180 degrees. For a pentagon, n is five, so the total is (5−2)×180 = 3×180 = 540 degrees. This works because you can divide a pentagon into three triangles by drawing diagonals from one vertex, and each triangle contributes 180 degrees, giving 3×180 = 540 in total. The other numbers correspond to polygons with different numbers of sides: 360 for a four-sided shape, 720 for a six-sided shape, and 900 for a seven-sided shape.

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7. If the tone of a paragraph is sarcastic, what is the author's attitude?

A. Mocking or ironic attitude

B. Cheerful tone

C. Neutral attitude

D. Respectful tone

Sarcasm communicates a mocking or ironic attitude toward the subject (and often toward the reader as well). When the writer uses sarcasm, the surface meaning is at odds with what they truly think, signaling contempt, ridicule, or scorn. That contrast between what's said and what's meant is the hallmark of sarcasm, showing the author doesn't passively accept the subject but treats it with derision. This differs from a cheerful tone, which conveys happiness and warmth; a neutral attitude, which is calm and unbiased; or a respectful tone, which shows deference or politeness. The sarcastic voice, by using irony and implied criticism, makes the author's attitude clearly mocking or ironic.

8. Which acronym corresponds to Federal Aviation Regulation?

A. FAA

B. FO

C. FAR

D. GPU

Federal Aviation Regulations are the rulebook that governs civilian aviation, and the acronym used for them is FAR. These regulations are codified in Title 14 of the Code of Federal Regulations and are referred to in parts like Part 91 or Part 135—the specific rules pilots and operators must follow. FAR specifically denotes the regulations themselves, not the agency that enforces them. The agency responsible for creating and enforcing these rules is the FAA (Federal Aviation Administration). The other terms don't relate to the regulatory text: GPU is graphics hardware, and FO isn't a standard aviation regulatory acronym.

9. What is Newton's second law of motion?

A. $F = ma$

B. $F = mv$

C. $v = at$

D. $p = mv$

Newton's second law describes how force, mass, and acceleration relate: the net force acting on an object equals the rate at which its momentum changes. When the mass stays constant, this becomes $F = ma$, linking the force you apply directly to how quickly the object speeds up in a given direction. The bigger the net force, the bigger the acceleration; the heavier the object, the smaller the acceleration for the same force. Mass is the quantity that sets how much acceleration results from a given push, and the acceleration points in the same direction as the net force. Think of momentum $p = mv$ as the blend of how much stuff there is (mass) and how fast it's moving (velocity). The law really connects force to how momentum changes over time, dp/dt. If mass doesn't change, dp/dt reduces to $m \cdot a$, giving $F = ma$. That's why $F = ma$ is the standard form you'll use in most problems. The other expressions don't describe this relationship. $v = at$ is a velocity-time relation for constant acceleration, a kinematic result, not a force–response relation. $p = mv$ states momentum, not force.

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10. What is the 24-hour time for 3:00 PM?

A. 1500

B. 1400

C. 1600

D. 1700

On a 24-hour clock, hours after midnight go from 00 to 23, and noon is 12:00. For times in the afternoon, add 12 to the hour. So 3:00 PM becomes 15:00, or 1500 in the four-digit form. The other options map to 2 PM (14:00 1400), 4 PM (16:00 1600), and 5 PM (17:00 1700), which is why they aren't correct.

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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://mesaentrance.examzify.com

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

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