

PRAXIS MIDDLE SCHOOL MATHEMATICS (5164) 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. Compute (-5) raised to the power of negative two.
 - A. $-1/25$
 - B. 25
 - C. $1/25$
 - D. -25
2. In the standard form $y = ax^2 + bx + c$, which value corresponds to the y-intercept?
 - A. a
 - B. c
 - C. b
 - D. the y-coordinate of the vertex
3. Which statistics are easily affected by outliers?
 - A. Mean and Range
 - B. Median and Mode
 - C. Standard Deviation and Median
 - D. Range and Mode
4. Which statement defines a composite number?
 - A. A number that has exactly two factors.
 - B. A number that can be divided evenly by 1 and itself only.
 - C. A whole number greater than 1 that can be divided evenly by numbers other than 1 or itself.
 - D. A negative integer.
5. A quadratic equation can have how many real solutions at most?
 - A. Three
 - B. Two
 - C. One
 - D. Zero

6. Any nonzero number raised to the 0 power equals which value?
- A. 0
 - B. 1
 - C. a
 - D. undefined
7. What is the percent change when a value increases from 50 to 60?
- A. 20%
 - B. 10%
 - C. 60%
 - D. -20%
8. Evaluate $16^{(1/4)}$.
- A. 3
 - B. 4
 - C. $\sqrt{16}$
 - D. 2
9. One meter is approximately how many feet?
- A. 3.28 ft
 - B. 2.54 ft
 - C. 3.0 ft
 - D. 4.0 ft
10. Which expression equals half a number x decreased by six?
- A. $x/2 - 6$
 - B. $(x-6)/2$
 - C. $(6 - x)/2$
 - D. $x/2 + 6$

Answers

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

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Explanations

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1. Compute (-5) raised to the power of negative two.

- A. $-1/25$
- B. 25
- C. $1/25$**
- D. -25

The main idea is that a negative exponent means you take the reciprocal of the base raised to the positive exponent, and an even exponent makes the base positive before you take that reciprocal. So (-5) raised to the negative two is 1 divided by (-5) squared. Squaring removes the negative sign: $(-5)^2 = 25$. Therefore the expression equals $1/25$. The sign is positive because the exponent is even, so the reciprocal is a positive fraction. This matches the value $1/25$.

2. In the standard form $y = ax^2 + bx + c$, which value corresponds to the y-intercept?

- A. a
- B. c**
- C. b
- D. the y-coordinate of the vertex

The y-intercept is where the graph crosses the y-axis, which happens when $x = 0$. If you plug in $x = 0$ into $y = ax^2 + bx + c$, you get $y = c$. So the y-intercept is the constant term c . The coefficient a affects how the parabola opens and its width, while b influences the linear tilt, and the y-coordinate of the vertex is a separate point on the graph, not the intercept.

3. Which statistics are easily affected by outliers?

- A. Mean and Range**
- B. Median and Mode
- C. Standard Deviation and Median
- D. Range and Mode

Outliers have the biggest impact on measures that rely on every value or on the extremes of the data. The mean averages all data points, so an extremely large or small value pulls that average toward itself. The range is simply the difference between the largest and smallest values, so an outlier at either end directly widens the range. Because of that, mean and range are the statistics that are most easily distorted by outliers. In contrast, the median is the middle value when the data are ordered, so a single outlier doesn't move it much. The mode is just the most frequent value, and a rare extreme value won't typically become the most common. For illustration, with data like 1, 2, 3, 4, 1000, the mean jumps to about 202, the median stays at 3, and the range becomes 999, showing how the mean and range react strongly to the outlier while the median and mode do not.

4. Which statement defines a composite number?

- A. A number that has exactly two factors.
- B. A number that can be divided evenly by 1 and itself only.
- C. A whole number greater than 1 that can be divided evenly by numbers other than 1 or itself.**
- D. A negative integer.

Composite numbers are positive integers greater than 1 that have more than two divisors. In other words, they can be divided evenly by some number other than 1 and themselves. For example, 4 has divisors 1, 2, and 4, so it's composite because of the extra divisor 2. This is what sets composite numbers apart from primes, which have exactly two divisors: 1 and the number itself. The statement given captures this idea directly by saying the number can be divided evenly by numbers other than 1 or itself. Remember, numbers that are negative or equal to 1 aren't considered composite.

5. A quadratic equation can have how many real solutions at most?

- A. Three
- B. Two**
- C. One
- D. Zero

Quadratics form a parabola, and a parabola can intersect the x-axis in at most two points. That means the largest possible number of real solutions is two. If the discriminant is positive, there are two distinct real solutions; if it's zero, there is exactly one real solution; if it's negative, there are no real solutions. So two is the greatest number of real solutions a quadratic can have.

6. Any nonzero number raised to the 0 power equals which value?

- A. 0
- B. 1**
- C. a
- D. undefined

When you see a base raised to the power of zero, the rule is that you're multiplying the base by itself zero times. That means you're left with the multiplicative identity, which is 1. A quick way to see why: for any nonzero base a , the expression a^m / a^m equals 1, but also a^m / a^m equals $a^{m-m} = a^0$. Since a^m / a^m is 1, it follows that a^0 must be 1. This makes the exponent rule consistent for any nonzero base, so $a^0 = 1$. Examples: $5^0 = 1$, $(-3)^0 = 1$. The result doesn't apply to zero as the base in this statement, since 0^0 is a special case and is treated differently in many contexts.

7. What is the percent change when a value increases from 50 to 60?

- A. 20%
- B. 10%
- C. 60%
- D. -20%

Percent change tells us how much a value grows or shrinks compared to its starting amount. Here we go from 50 to 60, an increase of 10. That increase (10) relative to the original amount (50) is $10/50 = 1/5 = 0.20$, which is 20%. So the percent change is 20%. This also aligns with the idea that increasing 50 by 20% adds 10 to reach 60. The other percentages would require different amounts of change or a change based on the new value, not the starting value.

8. Evaluate $16^{(1/4)}$.

- A. 3
- B. 4
- C. $\sqrt{16}$
- D. 2

Taking a fractional exponent means finding a root. The expression $16^{(1/4)}$ asks for the fourth root of 16. Write 16 as 2^4 , then use the power-of-a-power rule: $(2^4)^{(1/4)} = 2^{(4 \cdot (1/4))} = 2^1 = 2$. Another way is to do it step by step with roots: $\sqrt{\sqrt{16}} = \sqrt{4} = 2$. The other numbers wouldn't work when raised to the fourth power ($3^4 = 81$, $4^4 = 256$), and taking the square root twice would give 4, which is not the fourth root. So the value is 2.

9. One meter is approximately how many feet?

- A. 3.28 ft
- B. 2.54 ft
- C. 3.0 ft
- D. 4.0 ft

Converting between metric and customary length units uses a fixed length relationship. One meter is defined as 0.3048 meters per foot, so the number of feet in a meter is 1 divided by 0.3048, which is about 3.28084 feet. That means one meter is approximately 3.28 feet. Among the options, 3.28 ft matches this common approximation. The other values correspond to other lengths: about 2.54 ft would be roughly 0.78 meters, about 3.0 ft is about 0.914 meters, and 4.0 ft is about 1.219 meters, not 1 meter.

10. Which expression equals half a number x decreased by six?

- A. $x/2 - 6$
- B. $(x-6)/2$
- C. $(6 - x)/2$
- D. $x/2 + 6$

Translating the phrase into an algebraic expression. Half of a number x means multiply x by $1/2$, giving $x/2$. Then "decreased by six" means subtract 6 from that result. So the expression is $x/2$ minus 6, written as $x/2 - 6$. For contrast, if you tried $(x-6)/2$, that would be half of (x minus 6), which equals $x/2 - 3$, not the same. If you used $(6 - x)/2$, you'd get half of (6 minus x), which is $3 - x/2$, again not the same. And $x/2 + 6$ would be adding six, not decreasing by six. A quick check: if $x = 10$, half is 5, then minus six gives -1 , and $x/2 - 6 = 10/2 - 6 = 5 - 6 = -1$, which matches.

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://praxis5164.examzify.com>

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

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