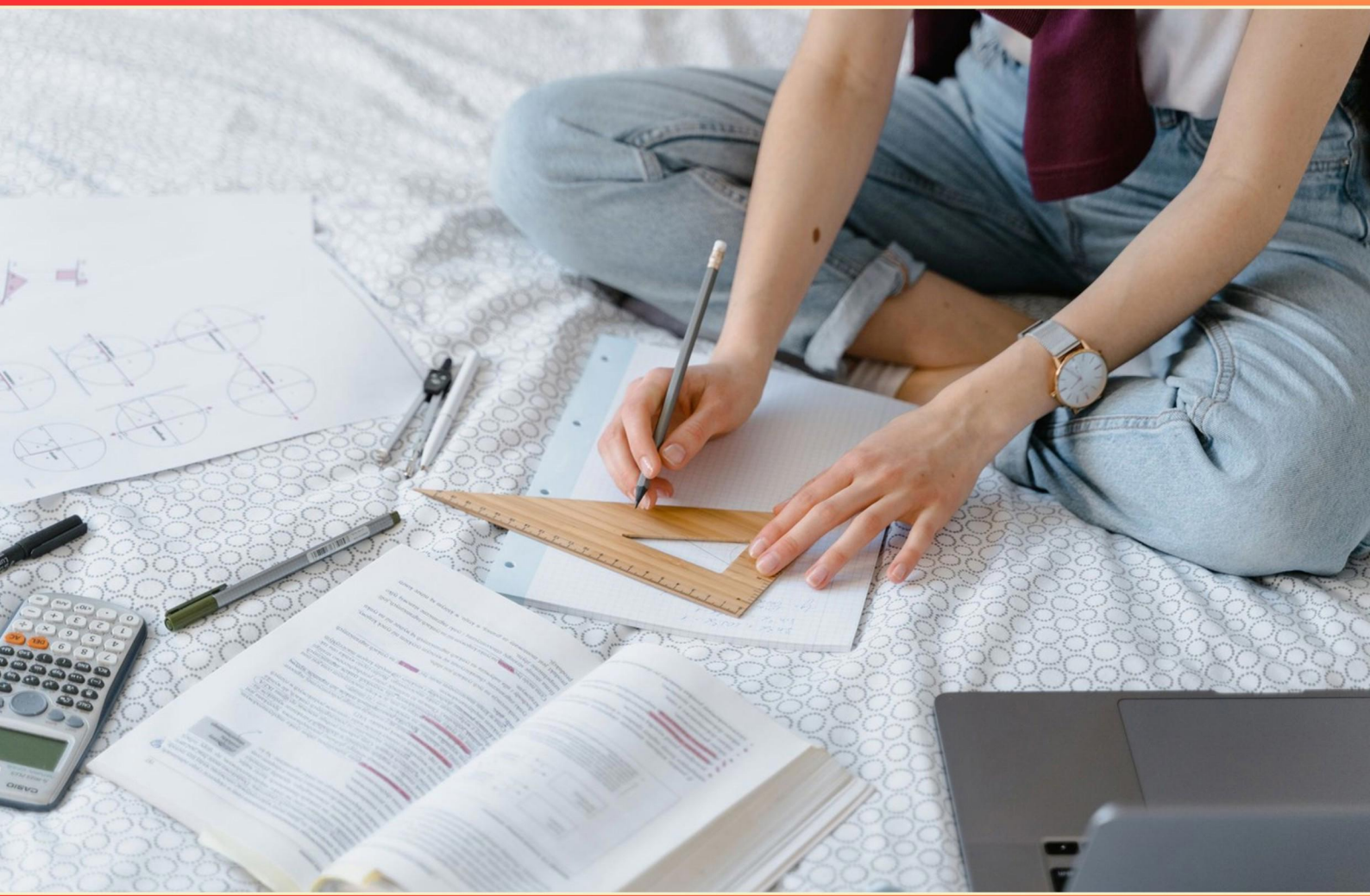
BMS MATHEMATICS ACADEMIC TEAM PRACTICE TEST (SAMPLE)

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. What is the formula for the Pythagorean theorem?

A. $a^2 + b^2 = c$

B. $a^2 + b^2 = c^2$

C. $c^2 + b^2 = a^2$

D. $a + b = c^2$

2. What is the sum of the interior angles of a triangle?

A. 90 degrees

B. 180 degrees

C. 270 degrees

D. 360 degrees

3. If F(X) is defined as 3X^(2/3), what is the value of F(-8)?

A. 8

B. 10

C. 12

D. 14

4. What is the solution set for the equation: $x^2 - 1 = 0$?

A. $x = 0$

B. $x = 1$ or $x = 0$

C. $x = 1$ or $x = -1$

D. $x = -1$ or $x = -2$

5. What is the distance formula in a coordinate plane?

A. $d = (x2 - x1) + (y2 - y1)$

B. $d = |x2 - x1| + |y2 - y1|$

C. $d = \sqrt{((x2 - x1)^2 + (y2 - y1)^2)}$

D. $d = \sqrt{(x2 + y2)}$

6. If Jimmy takes 6 hours and Bobby takes 3 hours to rake the yard separately, how long will it take them working together?

A. 1 hour

B. 2 hours

C. 3 hours

D. 4 hours

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7. If $2x + 3 = 11$, what is the value of x?

A. 2

B. 3

C. 4

D. 5

8. What is the area of a triangle with a base of 10 cm and a height of 5 cm?

A. 20 cm^2

B. 25 cm^2

C. 30 cm^2

D. 50 cm^2

9. If a triangle has sides measuring 5 cm, 12 cm, and 13 cm, what type of triangle is it?

A. Obtuse triangle

B. Right triangle

C. Acute triangle

D. Equilateral triangle

10. Which of the following shapes has the greatest number of sides?

A. Quadrilateral

B. Hexagon

C. Octagon

D. Decagon

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Answers

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

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Explanations

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1. What is the formula for the Pythagorean theorem?

A. $a^2 + b^2 = c$

B. $a^2 + b^2 = c^2$

C. $c^2 + b^2 = a^2$

D. $a + b = c^2$

The Pythagorean theorem states that in a right triangle, the square of the length of the hypotenuse (the side opposite the right angle) is equal to the sum of the squares of the lengths of the other two sides. This relationship is crucial in geometry and provides a way to determine a side length when the lengths of the other two sides are known. The formula $a^2 + b^2 = c^2$ precisely captures this relationship, where c represents the length of the hypotenuse, while a and b denote the lengths of the two other sides. This means if you know the lengths of any two sides of a right triangle, you can use this formula to calculate the length of the third side. For example, if one side is 3 units and another side is 4 units, you can calculate the hypotenuse as follows: $3^2 + 4^2 = c^2$ leads to $9 + 16 = c^2$, giving $c^2 = 25$ or $c = 5$. This demonstrates the theorem's practical application in solving real-world problems involving right triangles. In contrast to the correct formula, the

2. What is the sum of the interior angles of a triangle?

A. 90 degrees

B. 180 degrees

C. 270 degrees

D. 360 degrees

The sum of the interior angles of a triangle is always 180 degrees. This is a fundamental property in Euclidean geometry. Regardless of the type of triangle—whether it is scalene, isosceles, or equilateral—the total measure of the angles inside the triangle will always equal 180 degrees. This can be derived from the properties of parallel lines and transversals, or through the use of a triangle's structure, such as by drawing a line parallel to one side of the triangle and utilizing the alternate interior angles formed. The other options do not align with the established geometric principles: the sum of 90 degrees represents the total for the angles of a right triangle, while 270 and 360 degrees relate to different polygons, specifically quadrilaterals and circles respectively. Thus, the 180-degree sum is a critical concept that applies universally to all triangles in Euclidean space.

3. If F(X) is defined as 3X^(2/3), what is the value of F(-8)?

A. 8

B. 10

C. 12

D. 14

*To find the value of F(-8) for the function F(X) = 3X^(2/3), we first need to substitute -8 for X in the function. This gives us: F(-8) = 3 * (-8)^(2/3). Now, let's break down the expression (-8)^(2/3): 1. The power of 2/3 can be interpreted as first taking the cube root and then squaring the result. So, we can rewrite (-8)^(2/3) as [(-8)^(1/3)]^2. 2. The cube root of -8 is -2, since (-2) * (-2) * (-2) = -8. 3. Now, squaring -2 gives us (-2)^2 = 4. Putting it all together, we have: F(-8) = 3 * 4 = 12. Therefore, the value of F(-8) is correctly calculated as 12. This matches the value given in the choice labeled "C."*

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4. What is the solution set for the equation: $x^2 - 1 = 0$?

A. x = 0

B. x = 1 or x = 0

C. x = 1 or x = -1

D. x = -1 or x = -2

To solve the equation $x^2 - 1 = 0$, we can factor it using the difference of squares. The difference of squares states that $a^2 - b^2$ can be factored into $(a + b)(a - b)$. In this case, we have: $x^2 - 1 = (x - 1)(x + 1) = 0$. Setting each factor equal to zero gives us the possible solutions: 1. $x - 1 = 0$, which simplifies to $x = 1$. 2. $x + 1 = 0$, which simplifies to $x = -1$. Thus, the solutions to the equation are $x = 1$ and $x = -1$. This solution set matches the correct answer, indicating that x can take on two values: 1 and -1. Therefore, the correct answer is that the solution set consists of the numbers 1 and -1. The other choices do not align with the correct factorization or solutions derived from the equation set to zero. For instance, stating $x = 0$ would imply solving $x^2 = 1$, which does not apply here, as it overlooks the need to factorize properly. Similarly, the presence of -2 in another option is

5. What is the distance formula in a coordinate plane?

A. d = (x2 - x1) + (y2 - y1)

B. d = |x2 - x1| + |y2 - y1|

C. $d = \sqrt{(x2 - x1)^2 + (y2 - y1)^2}$

D. $d = \sqrt{x2 + y2}$

The distance formula in a coordinate plane is a mathematical expression used to determine the distance between two points, given their coordinates \((x_1, y_1)\) and \((x_2, y_2)\). The formula is derived from the Pythagorean theorem. When you consider a right triangle formed by these two points, the horizontal leg of the triangle represents the difference in the x-coordinates \((x_2 - x_1)\), while the vertical leg represents the difference in the y-coordinates \((y_2 - y_1)\). To find the distance between the two points, you apply the Pythagorean theorem: 1. Square the lengths of the legs: \((x_2 - x_1)^2\) for the horizontal leg and \((y_2 - y_1)^2\) for the vertical leg. 2. Add these two squares together: \((x_2 - x_1)^2 + (y_2 - y_1)^2\). 3. Take the square root of this sum to find the length of the hypotenuse, which represents the distance \(d\): \(d = \sqrt{(x_2

6. If Jimmy takes 6 hours and Bobby takes 3 hours to rake the yard separately, how long will it take them working together?

A. 1 hour

B. 2 hours

C. 3 hours

D. 4 hours

To determine how long it will take Jimmy and Bobby to rake the yard together, we start by calculating their individual work rates. Jimmy rakes the yard in 6 hours, which means his work rate is 1/6 of the yard per hour. Similarly, Bobby rakes the yard in 3 hours, giving him a work rate of 1/3 of the yard per hour. When they work together, we can add their rates of work: - Jimmy's rate: 1/6 yards per hour - Bobby's rate: 1/3 yards per hour To add these rates, we find a common denominator, which is 6. We convert Bobby's rate: 1/3 = 2/6 Now we can add the rates: 1/6 + 2/6 = 3/6 = 1/2 This combined rate means together they can rake 1/2 of the yard in one hour. To find out how long it takes them to complete the entire yard, we take the reciprocal of their combined rate: 1 / (1/2) = 2 hours. Thus, it will take Jimmy and Bobby 2 hours to rake the yard when

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7. If 2x + 3 = 11, what is the value of x?

A. 2

B. 3

C. 4

D. 5

To find the value of x in the equation $2x + 3 = 11$, we start by isolating x. First, we subtract 3 from both sides of the equation: $$2x + 3 - 3 = 11 - 3$$ This simplifies to: $$2x = 8$$ Next, we need to solve for x by dividing both sides by 2: $$x = \frac{8}{2}$$ This simplifies to: $$x = 4$$ Thus, the correct answer is 4. This solution shows how to effectively manipulate the equation step by step to isolate the variable x. The logical operations performed—subtracting and dividing—are fundamental algebraic techniques used to solve linear equations.

8. What is the area of a triangle with a base of 10 cm and a height of 5 cm?

A. 20 cm²

B. 25 cm²

C. 30 cm²

D. 50 cm²

To find the area of a triangle, the formula used is: $$\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}$$ In this case, the base of the triangle is given as 10 cm and the height is 5 cm. Plugging these values into the formula gives: $$\text{Area} = \frac{1}{2} \times 10 \, \text{cm} \times 5 \, \text{cm}$$ $$\text{Area} = \frac{1}{2} \times 50 \, \text{cm}^2$$ $$\text{Area} = 25 \, \text{cm}^2$$ Thus, the area of the triangle is correctly calculated to be 25 cm². This understanding is crucial in geometry as it applies to various problems involving triangular shapes. The other values presented do not match the calculation derived from the formula, confirming that 25 cm² is indeed the correct area.

9. If a triangle has sides measuring 5 cm, 12 cm, and 13 cm, what type of triangle is it?

A. Obtuse triangle

B. Right triangle

C. Acute triangle

D. Equilateral triangle

To determine the type of triangle formed by sides measuring 5 cm, 12 cm, and 13 cm, we can use the Pythagorean theorem. This theorem states that in a right triangle, the square of the length of the hypotenuse (the side opposite the right angle) is equal to the sum of the squares of the lengths of the other two sides. Here, we take the longest side, which is 13 cm, and check if it satisfies the Pythagorean theorem: 1. Calculate the square of the lengths of the sides: - $5^2 = 25$ - $12^2 = 144$ - $13^2 = 169$ 2. According to the theorem, for a right triangle, the equation should hold true: $$5^2 + 12^2 = 13^2$$ This simplifies to: $$25 + 144 = 169$$ $$169 = 169$$ Since the equation holds true, this indicates that the triangle with sides 5 cm, 12 cm, and 13 cm is a

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10. Which of the following shapes has the greatest number of sides?

A. Quadrilateral

B. Hexagon

C. Octagon

D. Decagon

A decagon is a polygon that has ten sides. To determine why this shape has the greatest number of sides among the options provided, let's look at the definitions of the other shapes in the list. A quadrilateral has four sides, which makes it a simple four-sided figure. A hexagon has six sides, which is greater than a quadrilateral but still fewer than the ten sides of a decagon. An octagon has eight sides, further increasing the count, yet it still does not reach the number of sides in a decagon. Given this information, the decagon stands out as the shape with the highest number of sides in this selection, confirming that it is the correct answer.

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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://bmsmathacadteam.examzify.com

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

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