

COLLEGE MATH PLACEMENT PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	15

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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 is the solution for x in the equation $3 + 3x = 12 + x$?
- A. $x = 9/2$
 - B. $x = 15/4$
 - C. $x = 5/4$
 - D. $x = 5/2$
2. In a system of equations, if one equation is $y = 2x + 3$, what is the slope of the line?
- A. 1
 - B. 2
 - C. 3
 - D. 4
3. What is the value of $(3^2 + 4^2)$?
- A. 7
 - B. 12
 - C. 25
 - D. 30
4. What is the x -intercept of the line given by the equation $2x + 3y = 6$?
- A. x -intercept = 1
 - B. x -intercept = 2
 - C. x -intercept = 3
 - D. x -intercept = 4
5. What is the solution to the system of equations: $2x + 3y = 6$ and $x - y = 2$?
- A. $x = 2, y = 0$
 - B. $x = 3, y = 2$
 - C. $x = 3, y = 0$
 - D. $x = 1, y = 1$
6. Convert the fraction $3/4$ into a decimal.
- A. 0.25
 - B. 0.50
 - C. 0.75
 - D. 1.00

7. What is the product of 3.645 and 0.2 after moving the decimal point three places to the left?

- A. A. 3.645
- B. B. 7.209
- C. C. 0.737
- D. D. 0.729

8. What is the derivative of the function $f(x) = 3x^2$?

- A. 3
- B. $6x$
- C. $9x^2$
- D. x

9. What does the slope formula help you determine when given two points?

- A. The equation of the line.
- B. The midpoint between the two points.
- C. The distance between the points.
- D. The area of the triangle formed.

10. If the exponential function is $f(x) = 2^x$, what is $f(3)$?

- A. 6
- B. 8
- C. 4
- D. 12

Answers

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

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Explanations

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1. What is the solution for x in the equation $3 + 3x = 12 + x$?

A. $x = 9/2$

B. $x = 15/4$

C. $x = 5/4$

D. $x = 5/2$

To solve the equation $3 + 3x = 12 + x$, we start by isolating the variable x . First, let's rearrange the equation by moving all terms involving x to one side and all constant terms to the other side. We can do this by subtracting x from both sides: $3 + 3x - x = 12 + x - x$. This simplifies to: $3 + 2x = 12$. Next, subtract 3 from both sides to eliminate the constant on the left side: $3 + 2x - 3 = 12 - 3$. This results in: $2x = 9$. Now, to solve for x , we need to divide both sides by 2: $x = \frac{9}{2}$. Thus, the solution $x = \frac{9}{2}$ corresponds accurately to the choice provided. This correctly demonstrates that the original equation holds true when x is substituted back, confirming the validity of the solution derived.

2. In a system of equations, if one equation is $y = 2x + 3$, what is the slope of the line?

A. 1

B. 2

C. 3

D. 4

To determine the slope of the line given by the equation $y = 2x + 3$, we can refer to the general form of a linear equation, which is $y = mx + b$. In this format, 'm' represents the slope and 'b' represents the y-intercept. In the provided equation, $y = 2x + 3$, we can see that the coefficient of x is 2. This means that the slope of the line is 2. The slope indicates that for each unit increase in x , the value of y increases by 2 units. Understanding the concept of slope is vital in identifying how steep a line is and the direction it moves. A positive slope indicates that the line rises as you move from left to right. Thus, in this case, the slope of 2 confirms that the line has a relatively steep incline upwards. This reinforces your answer that the slope of the line is indeed 2.

3. What is the value of $(3^2 + 4^2)$?

A. 7

B. 12

C. 25

D. 30

To find the value of $(3^2 + 4^2)$, we first need to calculate each square separately: 3^2 means 3 multiplied by itself, which is equal to 9. 4^2 means 4 multiplied by itself, which is equal to 16. Next, we add the two results together: $9 + 16$ equals 25. Therefore, the expression $(3^2 + 4^2)$ evaluates to 25, making the correct answer C. Understanding this involves recognizing that squaring a number involves multiplying the number by itself, and adding the results of those squares gives us the final value we are looking for.

4. What is the x-intercept of the line given by the equation $2x + 3y = 6$?

- A. x-intercept = 1
- B. x-intercept = 2
- C. x-intercept = 3**
- D. x-intercept = 4

To determine the x-intercept of the line represented by the equation $2x + 3y = 6$, you need to find the value of x when $y = 0$. The x-intercept occurs at the point on the graph of the line where it crosses the x-axis, and this happens when the y -coordinate is zero. Start by substituting $y = 0$ into the equation: $2x + 3(0) = 6$. This simplifies to: $2x = 6$. Next, solve for x by dividing both sides of the equation by 2: $x = \frac{6}{2} = 3$. Thus, the x-intercept of the line is at $(3, 0)$. This corresponds to the point $(3, 0)$ on the graph, meaning that when the line crosses the x-axis, the value of x is indeed 3, making it the correct answer.

5. What is the solution to the system of equations: $2x + 3y = 6$ and $x - y = 2$?

- A. $x = 2, y = 0$
- B. $x = 3, y = 2$
- C. $x = 3, y = 0$**
- D. $x = 1, y = 1$

To solve the system of equations $2x + 3y = 6$ and $x - y = 2$, we can use substitution or elimination. Here, we'll use substitution for clarity. First, solve the second equation $x - y = 2$ for x : $x = y + 2$. Next, substitute this expression for x into the first equation: $2(y + 2) + 3y = 6$. Now, distribute the 2: $2y + 4 + 3y = 6$. Combine like terms: $5y + 4 = 6$. Subtract 4 from both sides: $5y = 2$. Now, divide both sides by 5: $y = \frac{2}{5}$. Next, substitute y back into the equation $x = y + 2$ to find x : $x = (\frac{2}{5}) + 2 = (\frac{2}{5}) + (\frac{10}{5}) = \frac{12}{5}$. Thus, the solution to the system is $x = \frac{12}{5}$ and $y = \frac{2}{5}$. Evaluating the provided choices, we find that option C ($x = 3, y = 0$) does not correctly reflect the solution we derived. The

6. Convert the fraction $\frac{3}{4}$ into a decimal.

- A. 0.25
- B. 0.50
- C. 0.75**
- D. 1.00

To convert the fraction $\frac{3}{4}$ into a decimal, you need to divide the numerator (3) by the denominator (4). Performing this division: $3 \div 4 = 0.75$. This shows that the value of the fraction $\frac{3}{4}$ in decimal form is indeed 0.75. Understanding why this is correct involves recognizing that fractions represent division of two numbers. The fraction $\frac{3}{4}$ indicates that 3 is being divided by 4, which results in a decimal value of 0.75. This means that if you had four equal parts, three of those parts make up 75% of the whole, translating to the decimal 0.75. The other choices represent different decimal values that do not accurately reflect the fraction $\frac{3}{4}$. Since the division gives exactly 0.75, it confirms that this is the correct decimal form of the fraction.

7. What is the product of 3.645 and 0.2 after moving the decimal point three places to the left?

- A. A. 3.645
- B. B. 7.209
- C. C. 0.737
- D. D. 0.729**

To find the product of 3.645 and 0.2 after moving the decimal point three places to the left, let's first calculate the product: $3.645 \times 0.2 = 0.729$. Next, regarding the decimal point adjustment, if we were to take 3.645 and move the decimal point three places to the left, we transform it into 0.003645. However, in this specific question, the product calculated will give us the final answer without needing to further adjust for decimal movement. Thus, the original product of 3.645 and 0.2 directly yields 0.729. The choice representing this calculation accurately is the one that states 0.729.

8. What is the derivative of the function $f(x) = 3x^2$?

- A. 3
- B. $6x$**
- C. $9x^2$
- D. x

To find the derivative of the function $f(x) = 3x^2$, we apply the power rule, which states that if you have a term in the form ax^n , the derivative is given by multiplying the coefficient a by the exponent n and then reducing the exponent by one. In this function, we identify $a = 3$ and $n = 2$. According to the power rule, the derivative $f'(x)$ can be computed as follows: 1. Multiply the coefficient (3) by the exponent (2), which gives us $3 \cdot 2 = 6$. 2. Reduce the exponent by one, changing the exponent from 2 to 1. Thus, the derivative $f'(x) = 6x^1$, which simplifies to $f'(x) = 6x$. This is why the correct answer is the derivative $6x$. This approach and understanding of the power rule are fundamental in calculus, making it essential to master as it allows us to find the slope of any polynomial function accurately.

9. What does the slope formula help you determine when given two points?

- A. The equation of the line.**
- B. The midpoint between the two points.
- C. The distance between the points.
- D. The area of the triangle formed.

The slope formula, which is calculated as the change in the y-coordinates divided by the change in the x-coordinates of two points, specifically helps determine the steepness or inclination of the line connecting those two points. By finding the slope, you can establish a relationship between the variables represented by the points, which is a critical component in forming the equation of a line in slope-intercept form ($y = mx + b$), where m is the slope. While knowing the slope is essential, it's important to note that the slope itself is a piece of information that contributes toward defining the equation of the line, but it does not provide the complete equation without further information, such as one of the points on the line or the y-intercept. Thus, the correct answer highlights the fundamental role of the slope in determining the equation of the line formed by the two points. The other choices pertain to different concepts that are not directly related to the slope formula. For instance, the midpoint calculation involves averaging the coordinates, while distance pertains to the geometric separation between points, and area relates to a specific geometric shape formed, none of which are determined by the slope alone.

10. If the exponential function is $f(x) = 2^x$, what is $f(3)$?

- A. 6
- B. 8**
- C. 4
- D. 12

To find the value of the exponential function $f(x) = 2^x$ at $x = 3$, we substitute 3 into the function. This gives us: $f(3) = 2^3$. Calculating 2^3 : - $2^1 = 2$ - $2^2 = 4$ - $2^3 = 2 \times 2 \times 2 = 8$. So, $f(3) = 8$, which confirms that the value of the function when $x = 3$ is indeed 8. This understanding of how exponential functions operate is crucial, as it illustrates how to evaluate them for any input value. In this case, recognizing that 2^3 is simply 2 multiplied by itself three times leads us directly to the 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://collegemath.examzify.com>

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

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