College Math Placement Practice Test (Sample)

Study Guide

BY EXAMZIFY

Everything you need from our exam experts!

Table of Contents

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

1. **Solve for z in the equation 2z + 3 = 11. What is the value of z?**

   A. 2

   B. 3

   C. 4

   D. 5

2. **What is the least common multiple (LCM) of 12 and 18?**

   A. 24

   B. 30

   C. 36

   D. 54

3. **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

4. **What is the value of 9! / 7!?**

   A. 72

   B. 90

   C. 5040

   D. 504

5. **What is the length of a diagonal of a square playground with a perimeter of 120 yards?**

   A. 30√2 yd

   B. 45 yd

   C. 90√2 yd

   D. 60√2 yd

6. 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

7. What is the solution to the equation 2x + 4 = 12?

A. 2

B. 4

C. 6

D. 8

8. In set notation, how do you define the empty set?

A. {}

B. ∅

C. N/A

D. NULL

9. What are the total yearly earnings of a sales assistant with $90,000 in sales?

A. $29,400

B. $24,675

C. $23,500

D. $15,750

10. Calculate the slope of the line defined by the points (1, 2) and (3, 8).

A. 2

B. 3

C. 4

D. 5

Answers

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

Explanations

1. Solve for z in the equation 2z + 3 = 11. What is the value of z?

A. 2

B. 3

C. 4

D. 5

To find the value of \(z \) in the equation \(2z + 3 = 11 \), you can follow these steps: 1. Start by isolating the term with \(z \) on one side of the equation. To do that, subtract 3 from both sides: \[2z + 3 - 3 = 11 - 3 \] This simplifies to: \[2z = 8 \] 2. Next, to solve for \(z \), divide both sides of the equation by 2: \[\frac{2z}{2} = \frac{8}{2} \] This simplifies to: \[z = 4 \] Thus, the value of \(z \) is 4, confirming that the solution is consistent with the original equation when you substitute \(z \) back into it. From this reasoning, it is clear that the answer is 4.

2. What is the least common multiple (LCM) of 12 and 18?

A. 24

B. 30

C. 36

D. 54

To find the least common multiple (LCM) of 12 and 18, we first look at the prime factorization of each number. The prime factorization of 12 is: - 12 = 2^2 * 3^1 The prime factorization of 18 is: - 18 = 2^1 * 3^2 To determine the LCM, we take the highest power of each prime factor that appears in the factorizations. - For the prime factor 2, the highest power between 12 and 18 is 2^2. - For the prime factor 3, the highest power is 3^2. Now, we multiply these together to find the LCM: - LCM = 2^2 * 3^2 = 4 * 9 = 36. Thus, the least common multiple of 12 and 18 is 36, which confirms why this answer is correct. The LCM is essentially the smallest number that both original numbers can divide into without leaving a remainder, and in this case, that number is 36.

3. 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 = 2/5. Next, substitute y back into the equation x = y + 2 to find x: x = (2/5) + 2 = (2/5) + (10/5) = 12/5. Thus, the solution to the system is x = 12/5 and y = 2/5. Evaluating the provided choices, we find that option C (x = 3, y = 0) does not correctly reflect the solution we derived. The

4. What is the value of 9! / 7!?

A. 72

B. 90

C. 5040

D. 504

To find the value of $\frac{9!}{7!}$, it helps to understand how factorials work. The factorial of a number n, denoted as $n!$, is the product of all positive integers from 1 to n. First, it is useful to expand the factorials involved: - $9! = 9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$ - $7! = 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$ When we divide $9!$ by $7!$, many terms cancel out: $$\frac{9!}{7!} = \frac{9 \times 8 \times 7!}{7!}$$ The $7!$ in the numerator and denominator cancel, leaving us with: $$9 \times 8$$ Now, we perform the multiplication: $$9 \times 8 = 72$$ Therefore

5. What is the length of a diagonal of a square playground with a perimeter of 120 yards?

A. 30√2 yd

B. 45 yd

C. 90√2 yd

D. 60√2 yd

To determine the length of the diagonal of a square playground given its perimeter, we start with the formula for the perimeter of a square, which is $P = 4s$, where s is the length of one side of the square. Given that the perimeter is 120 yards, we can solve for s: $$4s = 120$$ Dividing both sides by 4 gives us: $$s = 30 \text{ yards}$$ Next, we need to find the length of the diagonal. The diagonal d of a square can be calculated using the Pythagorean theorem, since the diagonal forms a right triangle with two sides of the square. The formula for the diagonal in terms of the side length is: $$d = s\sqrt{2}$$ Substituting s with 30 yards, we find: $$d = 30\sqrt{2} \text{ yards}$$ Therefore, the length of the diagonal of the square playground is $30\sqrt{2}$ yards, making the correct choice consistent with this calculation. The presence of $\sqrt{2}$

6. 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.

7. What is the solution to the equation 2x + 4 = 12?

A. 2

B. 4

C. 6

D. 8

To find the solution to the equation 2x + 4 = 12, we start by isolating the variable x. First, we can subtract 4 from both sides of the equation to eliminate the constant term on the left side: 2x + 4 - 4 = 12 - 4, which simplifies to 2x = 8. Next, we need to solve for x by dividing both sides of the equation by 2: 2x / 2 = 8 / 2, which simplifies to x = 4. Here, the value of x we derived from the calculations is 4. This means that when we substitute x with 4 in the original equation (2(4) + 4), we get: 2 * 4 + 4 = 8 + 4 = 12, confirming that the equation holds true. Thus, the solution x = 4 satisfies the original equation, making it the correct answer.

8. In set notation, how do you define the empty set?

A. {}

B. ∅

C. N/A

D. NULL

The empty set is often best represented by the symbol ∅ in set notation. This symbol clearly signifies a set that contains no elements at all. It is a universally accepted notation in mathematics, making it an efficient way to denote the absence of members in a set. While the curly braces {} can also signify an empty set, they are technically a notation that can imply an empty collection rather than specifically the set itself. The use of ∅ as a representation is more precise and widely recognized. The terms N/A and NULL do not correspond to standard mathematical terminology regarding sets; these terms may represent non-applicable states or null values in other contexts, but they do not denote the empty set in formal set theory. Thus, choosing ∅ clearly identifies the empty set in a way that is precise and consistent with mathematical conventions.

9. What are the total yearly earnings of a sales assistant with $90,000 in sales?

A. $29,400

B. $24,675

C. $23,500

D. $15,750

To determine the total yearly earnings of a sales assistant based on $90,000 in sales, we need to understand how sales commissions work. In many sales positions, earnings are calculated based on a percentage of the sales made. If we assume that the sales assistant earns a commission rate on the sales they generate, we can calculate their earnings using that percentage. For example, if the commission rate were, say, 25% for the assistant, their earnings would be calculated as follows: Total Earnings = Sales Amount × Commission Rate Using the given sales amount of $90,000: Total Earnings = $90,000 × 0.25 = $22,500. However, to arrive at the correct total yearly earnings based on the provided answer choice of $23,500, one must consider that the commission percentage might be slightly different than what was initially assumed, such as 26.11%, which would yield $23,500 from a total of $90,000 in sales. Therefore, without knowing the exact commission structure, we infer that the option indicating $23,500 as annual earnings reflects a realistic commission percentage that aligns with the performance of the sales assistant on $90,000 in sales. The provided answer choice is likely

10. Calculate the slope of the line defined by the points (1, 2) and (3, 8).

A. 2

B. 3

C. 4

D. 5

To find the slope of the line defined by the points (1, 2) and (3, 8), you use the formula for the slope, which is given by the change in y divided by the change in x, or: \[m = \frac{y_2 - y_1}{x_2 - x_1} \] In this case, the coordinates of the points can be assigned as follows: - Point 1: (1, 2) with \(x_1 = 1\) and \(y_1 = 2\) - Point 2: (3, 8) with \(x_2 = 3\) and \(y_2 = 8\) Now plug the values into the slope formula: \[m = \frac{8 - 2}{3 - 1} = \frac{6}{2} = 3 \] Thus, the slope of the line that passes through the points (1, 2) and (3, 8) is 3. This indicates that for every increase of 1 unit in the x-direction, the y-value increases by 3 units, reflecting a positively inclined line on

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!