

ASSESSMENT AND LEARNING IN KNOWLEDGE SPACES (ALEKS) BASIC MATH PLACEMENT PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

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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. When multiplying numbers with exponents, what operation should you perform with the exponents?
 - A. Multiply them
 - B. Add them
 - C. Subtract them
 - D. Leave them unchanged
2. What is the value of $(6 + 2) \times (5 - 3)$?
 - A. 12
 - B. 14
 - C. 16
 - D. 18
3. What is the final simplified form of $(7/2)^{-2}$?
 - A. $7/4$
 - B. $4/49$
 - C. $49/4$
 - D. $1/4$
4. Simplify the expression: $2(x + 5) - 3$.
 - A. $2x + 5$
 - B. $2x + 10$
 - C. $2x + 7$
 - D. $x + 7$
5. What is the purpose of switching the fraction in a negative exponent?
 - A. To simplify the fraction
 - B. To make the calculations easier
 - C. To convert it to a positive exponent
 - D. To change the value of the fraction
6. What is the next prime number after 11?
 - A. 12
 - B. 13
 - C. 14
 - D. 15

7. What is 50% of 80?

- A. 30
- B. 35
- C. 40
- D. 45

8. If a bag contains 3 red, 2 blue, and 5 green marbles, what is the probability of randomly selecting a blue marble?

- A. $\frac{1}{5}$
- B. $\frac{1}{10}$
- C. $\frac{1}{4}$
- D. $\frac{1}{2}$

9. What is the value of $5 + 7$?

- A. 10
- B. 11
- C. 12
- D. 13

10. What is the least common multiple (LCM) of 4 and 6?

- A. 12
- B. 24
- C. 8
- D. 18

Answers

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

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Explanations

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1. When multiplying numbers with exponents, what operation should you perform with the exponents?

- A. Multiply them
- B. Add them**
- C. Subtract them
- D. Leave them unchanged

When multiplying numbers with exponents that have the same base, you should add the exponents. This is a fundamental property of exponents known as the product of powers rule. For example, if you have $a^m \times a^n$, you combine the exponents by adding them together, resulting in a^{m+n} . This rule applies only when the bases are the same. Therefore, if you were to multiply different bases or apply it in different contexts, the operation might change. Understanding this operation helps simplify expressions and perform calculations involving exponents more efficiently in algebra.

2. What is the value of $(6 + 2) \times (5 - 3)$?

- A. 12
- B. 14
- C. 16**
- D. 18

To find the value of the expression $(6 + 2) \times (5 - 3)$, we follow the order of operations, often remembered by the acronym PEMDAS (Parentheses, Exponents, Multiplication and Division (from left to right), Addition and Subtraction (from left to right)). First, we solve the expressions within the parentheses: 1. For $(6 + 2)$, the calculation is straightforward: $6 + 2 = 8$. 2. Next, we evaluate $(5 - 3)$: $5 - 3 = 2$. Now we substitute these results back into the expression: $(6 + 2) \times (5 - 3)$ becomes 8×2 . Lastly, we perform the multiplication: $8 \times 2 = 16$. Thus, the correct answer is 16. This shows the correct understanding of applying the order of operations to evaluate the mathematical expression accurately.

3. What is the final simplified form of $(\frac{7}{2})^{-2}$?

- A. $\frac{7}{4}$
- B. $\frac{4}{49}$**
- C. $\frac{49}{4}$
- D. $\frac{1}{4}$

To simplify $(\frac{7}{2})^{-2}$, we first need to understand how negative exponents work. A negative exponent indicates that we take the reciprocal of the base and then raise it to the positive of that exponent. So, $(\frac{7}{2})^{-2}$ can be rewritten as: $[\left(\frac{2}{7}\right)^2]$. Next, we square both the numerator and the denominator: $\frac{2^2}{7^2} = \frac{4}{49}$. Thus, the final simplified form of $(\frac{7}{2})^{-2}$ is indeed $\frac{4}{49}$. This confirms that the option provided is correct. The steps illustrate how to properly handle negative exponents and simplify fractions.

4. Simplify the expression: $2(x + 5) - 3$.

- A. $2x + 5$
- B. $2x + 10$
- C. $2x + 7$
- D. $x + 7$

To simplify the expression $2(x + 5) - 3$, we start by distributing the 2 to both terms inside the parentheses. This means we multiply 2 by x and then by 5: $2(x + 5) = 2x + 10$. Next, we need to subtract 3 from the result of our distribution: $2x + 10 - 3$. Now, we combine the constants (10 and -3): $10 - 3 = 7$. Therefore, the expression simplifies to: $2x + 7$. This shows that the correct simplified form of the original expression is $2x + 7$.

5. What is the purpose of switching the fraction in a negative exponent?

- A. To simplify the fraction
- B. To make the calculations easier
- C. To convert it to a positive exponent
- D. To change the value of the fraction

When working with negative exponents, switching the fraction serves to convert it to a positive exponent. This is based on the mathematical rule that states that $a^{-n} = \frac{1}{a^n}$. In other words, a negative exponent indicates that you take the reciprocal of the base and then apply the positive exponent to it. For example, if you have x^{-2} , it can be rewritten as $\frac{1}{x^2}$. This transformation makes it easier to work with the expression in various mathematical contexts, such as simplifying equations or performing calculations. The conversion from a negative to a positive exponent is crucial for applying further mathematical operations correctly. This process does not change the value of the fraction, merely its representation, and does not directly simplify the fraction itself; therefore, those aspects are secondary to the main purpose of converting the exponent. The key takeaway is that the primary function of switching the fraction in the context of negative exponents is to allow for clearer mathematical operations by turning the negative exponent into a positive one.

6. What is the next prime number after 11?

- A. 12
- B. 13
- C. 14
- D. 15

The next prime number after 11 is 13. A prime number is defined as a natural number greater than 1 that has no positive divisors other than 1 and itself. To determine the next prime number following 11, we consider the whole numbers that follow 11: 12, 13, 14, and 15. - The number 12 is not prime because it can be divided evenly by 1, 2, 3, 4, 6, and 12. - The number 13, on the other hand, is only divisible by 1 and itself, making it a prime number. - The number 14 can be divided by 1, 2, 7, and 14, which means it is also not prime. - Lastly, the number 15 has divisors of 1, 3, 5, and 15, indicating it is not prime as well. Therefore, 13 is the next prime number after 11 due to meeting the definition of a prime number, while the other options do not qualify as prime numbers.

7. What is 50% of 80?

- A. 30
- B. 35
- C. 40**
- D. 45

To find 50% of 80, you can think of 50% as half of the total. When you calculate half of any number, you divide it by 2. So, for 80: $\left[\text{Half of } 80 = \frac{80}{2} = 40 \right]$ This calculation shows that 40 is indeed 50% of 80. The concept of percentage is grounded in proportions, where 50% signifies half of a given value. Thus, when you take half of 80, you arrive at the correct answer, which is 40.

8. If a bag contains 3 red, 2 blue, and 5 green marbles, what is the probability of randomly selecting a blue marble?

- A. $\frac{1}{5}$
- B. $\frac{1}{10}$**
- C. $\frac{1}{4}$
- D. $\frac{1}{2}$

To determine the probability of randomly selecting a blue marble from the bag, you need to analyze the total number of marbles and how many of those are blue. First, calculate the total number of marbles in the bag: - Red marbles: 3 - Blue marbles: 2 - Green marbles: 5 Adding these together gives you: 3 (red) + 2 (blue) + 5 (green) = 10 total marbles. Next, identify how many of these marbles are blue. There are 2 blue marbles. The probability of selecting a blue marble is found by taking the number of blue marbles and dividing it by the total number of marbles: Probability of blue marble = Number of blue marbles / Total number of marbles = $\frac{2}{10}$. This fraction simplifies to $\frac{1}{5}$. Understanding this process shows that the correct answer is based on the calculation of the proportion of blue marbles to the total marbles, leading to a probability of $\frac{1}{5}$, confirming that the proper choice reflects this accurate assessment of odds in a simple random selection scenario.

9. What is the value of $5 + 7$?

- A. 10
- B. 11
- C. 12**
- D. 13

To find the value of $5 + 7$, you simply add the two numbers together. When you start with 5 and then count 7 more, you can visualize this on a number line or by using basic counting. Starting at 5: - Adding 1 to 5 gives you 6, - Adding 2 gives you 7, - Adding 3 gives you 8, - Adding 4 gives you 9, - Adding 5 gives you 10, - Adding 6 gives you 11, - Finally, adding 7 brings you to 12. Therefore, the sum of 5 and 7 is 12. This makes the response identifying 12 as the correct answer. This addition is fundamental in basic arithmetic, and it's important to grasp these operations as they form the basis for more complex mathematical concepts.

10. What is the least common multiple (LCM) of 4 and 6?

A. 12

B. 24

C. 8

D. 18

To find the least common multiple (LCM) of 4 and 6, you first list the multiples of each number: Multiples of 4: 4, 8, 12, 16, 20, 24, ... Multiples of 6: 6, 12, 18, 24, ... The LCM is the smallest multiple that is common to both lists. By examining the multiples, the first number that appears in both lists is 12. This indicates that 12 is a common multiple. To further solidify this, you can use the prime factorization method. The prime factorization of 4 is 2^2 , and for 6, it is $2^1 \times 3^1$. For the LCM, you take the highest power of each prime number from both factorizations: - For the prime number 2, the highest power present is 2^2 . - For the prime number 3, the highest power present is 3^1 . Now, you multiply these together: $LCM = 2^2 \times 3^1 = 4 \times 3 = 12$

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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://aleks-basicmathplacement.examzify.com>

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

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