

MATHEMATICS ACT ASPIRE PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

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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. How do you find the median of the following set of numbers: 3, 1, 4, 2, 5?
- A. The median is 4.
 - B. The median is 2.
 - C. The median is 5.
 - D. The median is 3.
2. How would you express the mixed number $2 \frac{1}{5}$ as an improper fraction?
- A. $\frac{11}{5}$
 - B. $\frac{10}{5}$
 - C. $\frac{1}{5}$
 - D. $\frac{12}{5}$
3. What is the purpose of calculating sales tax?
- A. To find the final price of an item
 - B. To find the amount saved
 - C. To determine the original price
 - D. To calculate simple interest
4. In the fraction $\frac{5}{12}$, what does the 12 represent?
- A. The numerator
 - B. The denominator
 - C. The mixed number
 - D. The improper fraction
5. What is the value of x if $2x + 8 = 20$?
- A. 4
 - B. 6
 - C. 8
 - D. 10
6. What is the result of $15 \div (3 \times 5)$?
- A. 0
 - B. 1
 - C. 5
 - D. 3

7. What is the solution to the equation $-4x = 20$?

- A. $x = -5$
- B. $x = 5$
- C. $x = 0$
- D. $x = 4$

8. What is the mean of the following numbers: 2, 4, 6, 8, 10?

- A. 5
- B. 6
- C. 7
- D. 8

9. How do you find the area of a rectangle with a length of 5 and a width of 3?

- A. 8
- B. 15
- C. 20
- D. 30

10. How is the surface area of a rectangular prism calculated?

- A. Surface Area = $2(\text{length} \times \text{width})$
- B. Surface Area = $\text{length} + \text{width} + \text{height}$
- C. Surface Area = $2(\text{width} \times \text{height} + \text{length} \times \text{height} + \text{length} \times \text{width})$
- D. Surface Area = $\text{width} \times \text{height} \times \text{length}$

Answers

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

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Explanations

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1. How do you find the median of the following set of numbers: 3, 1, 4, 2, 5?

- A. The median is 4.
- B. The median is 2.
- C. The median is 5.
- D. The median is 3.**

To find the median of a set of numbers, you first need to arrange the numbers in ascending order. For the given set of numbers—3, 1, 4, 2, 5—if we sort them, we get: 1, 2, 3, 4, 5. Once the numbers are arranged, the median is identified as the middle number in the ordered list. In this case, there are five numbers, which is an odd total. The middle number is the third one in the sequence. Counting from the start, the numbers are: 1. First number: 1 2. Second number: 2 3. Third number: 3 (this is the median) 4. Fourth number: 4 5. Fifth number: 5 The third number, which is 3, is the median of the set. Hence, the median is correctly identified as 3. This process highlights the importance of ordering the data before identifying the median, particularly in sets with an odd number of values, as this determines which number is considered the central value.

2. How would you express the mixed number $2\frac{1}{5}$ as an improper fraction?

- A. $\frac{11}{5}$**
- B. $\frac{10}{5}$
- C. $\frac{1}{5}$
- D. $\frac{12}{5}$

To convert the mixed number $2\frac{1}{5}$ into an improper fraction, you start by multiplying the whole number part by the denominator of the fractional part. In this case, the whole number is 2 and the fractional part is $\frac{1}{5}$. First, multiply 2 (the whole number) by 5 (the denominator): $2 \times 5 = 10$. Next, take this result and add the numerator of the fractional part, which is 1. So, you add 10 and 1: $10 + 1 = 11$. This total becomes the numerator of the improper fraction, while the denominator remains the same (which is 5). Therefore, the improper fraction representation of the mixed number $2\frac{1}{5}$ is $\frac{11}{5}$. This method ensures that you maintain the value of the original mixed number while presenting it in an improper fraction form.

3. What is the purpose of calculating sales tax?

- A. To find the final price of an item**
- B. To find the amount saved
- C. To determine the original price
- D. To calculate simple interest

Calculating sales tax serves the specific purpose of finding the final price of an item after tax has been applied. When consumers purchase goods or services, they often need to know how much more they will pay beyond the listed price due to sales tax. The sales tax is usually a percentage of the original price of the item, and it is added to that price to arrive at the total cost owed by the consumer. This process ensures that buyers understand the total financial commitment required when making a purchase, which includes both the base price and any applicable taxes. The other purposes listed do not pertain to sales tax: finding the amount saved refers to discounts, determining the original price relates to the price before any additional costs, and calculating simple interest is a different mathematical operation entirely. Therefore, the correct choice highlights the role of sales tax in helping consumers ascertain the complete cost of their purchase.

4. In the fraction $\frac{5}{12}$, what does the 12 represent?

- A. The numerator
- B. The denominator**
- C. The mixed number
- D. The improper fraction

In the fraction $\frac{5}{12}$, the number 12 is the denominator. The denominator indicates how many equal parts the whole is divided into. In this case, it tells us that the whole is divided into 12 equal parts. The numerator, which is 5 in this case, indicates how many of those parts are being considered. So, the denominator is crucial for understanding the value of the fraction, as it establishes the total number of parts that make up one whole. The other options don't apply to 12 in this context: it is not the numerator since that is the 5; it is not a mixed number, which typically consists of a whole number and a proper fraction; and it is not an improper fraction, as that term refers to fractions where the numerator is greater than or equal to the denominator. These distinctions affirm that the correct answer is indeed that 12 represents the denominator.

5. What is the value of x if $2x + 8 = 20$?

- A. 4
- B. 6**
- C. 8
- D. 10

To find the value of x in the equation $2x + 8 = 20$, we start by isolating the term with x . First, subtract 8 from both sides of the equation: $2x + 8 - 8 = 20 - 8$. This simplifies to: $2x = 12$. Next, to solve for x , we divide both sides by 2: $x = \frac{12}{2}$. This results in: $x = 6$. Thus, the correct value of x is 6. This value is determined by systematically breaking down the equation step by step. The other options do not satisfy the original equation when substituted back in, as they do not equate to the result needed to maintain the equality. Therefore, 6 is the only solution that resolves the equation correctly.

6. What is the result of $15 \div (3 \times 5)$?

- A. 0
- B. 1**
- C. 5
- D. 3

To determine the result of the expression $15 \div (3 \times 5)$, it's essential to follow the order of operations, which dictates that you solve the multiplication within the parentheses first. Step 1: Calculate the multiplication inside the parentheses: 3×5 equals 15. Step 2: Now the expression simplifies to $15 \div 15$. Step 3: Finally, divide 15 by 15, which equals 1. So, the correct answer is 1. This outcome arises directly from correctly applying the order of operations to evaluate the expression accurately.

7. What is the solution to the equation $-4x = 20$?

A. $x = -5$

B. $x = 5$

C. $x = 0$

D. $x = 4$

To solve the equation $-4x = 20$, the goal is to isolate the variable x . To do this, you can start by dividing both sides of the equation by -4 . This step helps to eliminate the coefficient of x . When you divide the left side, $-4x$, by -4 , you are left with x . On the right side, when you divide 20 by -4 , the calculation is $20 \div -4$, which equals -5 . Thus, the solution to the equation $-4x = 20$ is $x = -5$. This means that when x takes the value of -5 , substituting it back into the original equation will satisfy it, confirming the solution is correct.

8. What is the mean of the following numbers: 2, 4, 6, 8, 10?

A. 5

B. 6

C. 7

D. 8

To find the mean of a set of numbers, you first sum all the numbers together and then divide by the total count of the numbers. In this case, you are working with the numbers 2, 4, 6, 8, and 10. First, calculate the sum of these numbers: $2 + 4 + 6 + 8 + 10 = 30$. Next, count how many numbers are in the set. Here, there are five numbers. Now, divide the total sum by the number of values: $30 \div 5 = 6$. Thus, the mean of the numbers 2, 4, 6, 8, and 10 is 6. This is why the correct answer is 6.

9. How do you find the area of a rectangle with a length of 5 and a width of 3?

A. 8

B. 15

C. 20

D. 30

To find the area of a rectangle, you use the formula: $\text{Area} = \text{Length} \times \text{Width}$. In this case, the length is given as 5, and the width is given as 3. By substituting these values into the formula, you calculate the area as follows: $\text{Area} = 5 \times 3 = 15$. So the area of the rectangle is indeed 15, which corresponds to the correct answer provided. The multiplication reflects the total space within the rectangle, determined by the product of its length and width.

10. How is the surface area of a rectangular prism calculated?

- A. Surface Area = $2(\text{length} \times \text{width})$
- B. Surface Area = $\text{length} + \text{width} + \text{height}$
- C. Surface Area = $2(\text{width} \times \text{height} + \text{length} \times \text{height} + \text{length} \times \text{width})$**
- D. Surface Area = $\text{width} \times \text{height} \times \text{length}$

The surface area of a rectangular prism is calculated using the formula that takes into account the areas of all six rectangular faces of the prism. Each face corresponds to a pair of the prism's dimensions: length, width, and height. The formula states that the surface area is equal to 2 times the sum of the areas of all three distinct pairs of faces. Specifically, it adds together the areas of the three different face types—width times height (for the two faces that have height and width), length times height (for the two faces that have height and length), and length times width (for the two faces that have length and width). The whole expression is then multiplied by 2 to account for the fact that there are two of each face type in the prism. This comprehensive approach ensures all surfaces are included when calculating the total surface area, making the formula accurate for any rectangular prism.

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://math-actaspire.examzify.com>

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

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