

SAE MATHEMATICS PRACTICE EXAM (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.

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 value of $(7 \times 8 - 9)$?
- A. 55
 - B. 56
 - C. 54
 - D. 57
2. Which of the following is the correct order of operations that could be used on a difficult math problem that contained grouping symbols?
- A. MDAS - multiplication, division, addition, subtraction
 - B. PEMDAS - parentheses, exponents, multiplication, division, addition, subtraction
 - C. AOA - addition, order, arithmetic
 - D. BEDMAS - brackets, exponents, division, multiplication, addition, subtraction
3. What mathematical topic is introduced when determining the total amount of money deposited by Joshua, who has collected 12,345 nickels?
- A. Adding whole numbers
 - B. Multiplying decimals
 - C. Dividing fractions
 - D. Rounding numbers
4. What is the solution to the equation $(2x + 5 = 15)$?
- A. 2
 - B. 5
 - C. 7
 - D. 10
5. How would you estimate the mass of a single slice of bread?
- A. 15 grams
 - B. 25 grams
 - C. 35 grams
 - D. 45 grams

6. What component of mathematics fluency is most likely the goal of an untimed test containing multiple choice mathematics problems for 5th graders?
- A. Speed
 - B. Accuracy
 - C. Comprehension
 - D. Notational fluency
7. What concept aids in finding the angle measure between the two hands of a clock reading 5:00 am?
- A. Each time increment on an analog clock measures 30 degrees
 - B. The total degrees in a circle is 360
 - C. Each minute represents 6 degrees
 - D. Each hour represents 15 degrees
8. A rectangle formed from pipe cleaner has a length of $\frac{1}{2}$ feet and width of 1.5 inches. What is its area in square inches?
- A. 30 inch²
 - B. 33 inch²
 - C. 27 inch²
 - D. 36 inch²
9. If a car travels at 60 miles per hour, how far does it travel in 2.5 hours?
- A. 120 miles
 - B. 150 miles
 - C. 180 miles
 - D. 300 miles
10. How do you convert $1\frac{1}{2}$ into an improper fraction?
- A. $\frac{3}{2}$
 - B. $\frac{5}{6}$
 - C. $\frac{2}{3}$
 - D. $\frac{4}{3}$

Answers

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

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Explanations

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1. What is the value of $(7 \times 8 - 9)$?

- A. 55
- B. 56
- C. 54**
- D. 57

To find the value of $(7 \times 8 - 9)$, begin by calculating (7×8) . When you multiply (7) by (8) , you get (56) . Next, subtract (9) from this result. So, you perform the operation: $[56 - 9 = 47]$ It appears there was a miscalculation in arriving at (54) as the answer. The correct conclusion shows that the final result is (47) , which differs from all the choices given. As observed, (54) is close to (56) but does not represent the correct outcome of the calculations. Always ensure to carry out operations step by step and verify each stage to avoid errors. Thus, the correct computation yields (47) , highlighting an essential aspect of arithmetic: careful operation management leads to valid results.

2. Which of the following is the correct order of operations that could be used on a difficult math problem that contained grouping symbols?

- A. MDAS - multiplication, division, addition, subtraction
- B. PEMDAS - parentheses, exponents, multiplication, division, addition, subtraction**
- C. AOA - addition, order, arithmetic
- D. BEDMAS - brackets, exponents, division, multiplication, addition, subtraction

The correct answer is based on the standard order of operations used in mathematics, which helps to clarify how to evaluate expressions that involve different mathematical operations. The order specified in the answer encompasses the proper sequence to tackle such problems. PEMDAS stands for parentheses, exponents, multiplication, division, addition, and subtraction. This mnemonic indicates the priority of operations that should be followed when simplifying mathematical expressions. First, calculations within parentheses or grouping symbols should be performed. Next, any exponents in the expression are resolved. After that, multiplication and division are handled from left to right, followed by addition and subtraction, also from left to right. Understanding this hierarchy is essential, as it prevents ambiguity in mathematical expressions and ensures consistent results. Without following the correct order, the outcome can vary dramatically, leading to misconceptions in problems involving multiple operations or grouping symbols. The other options do not properly establish this sequence or use recognized terminology. While some refer to the order of operations, they either omit fundamental elements or misrepresent the correct sequence. Therefore, PEMDAS serves as the most comprehensive and widely accepted method for addressing mathematical expressions correctly.

3. What mathematical topic is introduced when determining the total amount of money deposited by Joshua, who has collected 12,345 nickels?

A. Adding whole numbers

B. Multiplying decimals

C. Dividing fractions

D. Rounding numbers

To determine the total amount of money deposited by Joshua, who has 12,345 nickels, you start by recognizing that each nickel is worth \$0.05 (or 5 cents). The calculation involves finding the total value of the collected nickels, which can be represented mathematically as a multiplication of the number of nickels by the value of one nickel. When you multiply the quantity of nickels (12,345) by the value of a single nickel (\$0.05), you are performing a multiplication operation involving decimals. This calculation is necessary to arrive at the total monetary amount deposited, which would yield a result in dollars. Therefore, this scenario introduces the topic of multiplying decimals, as it involves both whole numbers (the count of nickels) and decimal values (the value of each nickel). The other options do not fit the context of this problem. Adding whole numbers would only be relevant if we were summing up quantities without a unit of value involved. Dividing fractions is not applicable in this case as we are not splitting any quantities or values. Rounding numbers could be introduced once a total is calculated, but it is not a part of the primary operation needed to determine the total amount based on the given information about

4. What is the solution to the equation $(2x + 5 = 15)$?

A. 2

B. 5

C. 7

D. 10

To solve the equation $(2x + 5 = 15)$, we start by isolating the variable (x) . First, we need to eliminate the constant term on the left side of the equation. We can do this by subtracting 5 from both sides: $(2x + 5 - 5 = 15 - 5)$ This simplifies to: $(2x = 10)$ Next, to isolate (x) , we need to divide both sides of the equation by 2: $(\frac{2x}{2} = \frac{10}{2})$ This results in: $(x = 5)$ Thus, the solution to the equation is $(x = 5)$. Therefore, the correct answer reflects this solution. This systematic approach of isolating the variable demonstrates the steps involved in solving a linear equation, making it essential to follow such practices in solving similar problems.

5. How would you estimate the mass of a single slice of bread?

A. 15 grams

B. 25 grams

C. 35 grams

D. 45 grams

To estimate the mass of a single slice of bread, considering typical values is essential. The average mass of a standard slice of bread often falls around 25 grams. This value is derived from common bread types, such as white, whole wheat, or multigrain, which generally have similar weights per slice. The selection of 25 grams reflects not just the weight of the slice itself but also the common practices in measuring food for nutritional purposes. It strikes a balance between different bread densities and sizes, making it a reasonable choice for estimating. Misestimations in other choices might arise because 15 grams would be too light for an average slice, while 35 grams and 45 grams would suggest a denser or larger slice than typically found in everyday loaves of bread. Thus, estimating the mass as 25 grams provides a practical, standard reflection of what one could expect for an average slice.

6. What component of mathematics fluency is most likely the goal of an untimed test containing multiple choice mathematics problems for 5th graders?

- A. Speed
- B. Accuracy**
- C. Comprehension
- D. Notational fluency

The goal of an untimed test containing multiple-choice mathematics problems for 5th graders primarily focuses on accuracy. In an untimed format, the intention is to allow students to take their time and think through the problems thoroughly, leading to a more accurate demonstration of their understanding and mastery of the material. Accuracy is crucial, especially at the 5th-grade level, where foundational math skills are being solidified. Tests designed this way assess whether students can correctly apply mathematical concepts rather than rush through questions, which may lead to errors. While speed can be beneficial in some contexts, it is not the primary focus of an untimed test. Comprehension is important as well, but the specific aim in this scenario emphasizes students demonstrating their ability to produce correct answers. Notational fluency pertains to the ability to use mathematical symbols and terminology properly, which is different from showing accuracy in solving problems. Therefore, accuracy is the essence of what this type of assessment seeks to measure.

7. What concept aids in finding the angle measure between the two hands of a clock reading 5:00 am?

- A. Each time increment on an analog clock measures 30 degrees**
- B. The total degrees in a circle is 360
- C. Each minute represents 6 degrees
- D. Each hour represents 15 degrees

To find the angle measure between the two hands of a clock at 5:00 am, knowing that each time increment on an analog clock measures 30 degrees is crucial. At 5:00 am, the hour hand points directly at the 5 on the clock face. Since a full rotation of the clock represents 360 degrees and there are 12 hours on a clock, each hour represents 30 degrees (360 degrees divided by 12 hours). Therefore, to calculate the position of the hour hand, you simply multiply the hour (5) by 30 degrees: $5 \text{ hours} \times 30 \text{ degrees/hour} = 150 \text{ degrees}$. The minute hand at 5:00 am points at the 12, which is at 0 degrees. The angle between the hour hand at 150 degrees and the minute hand at 0 degrees is: $150 \text{ degrees} - 0 \text{ degrees} = 150 \text{ degrees}$. This illustrates that knowing each hour increment is 30 degrees is essential for calculating the angles formed by the clock hands at any given time.

8. A rectangle formed from pipe cleaner has a length of $1\frac{1}{2}$ feet and width of 1.5 inches. What is its area in square inches?

- A. 30 inch^2
- B. 33 inch^2**
- C. 27 inch^2
- D. 36 inch^2

To find the area of a rectangle, you multiply its length by its width. In this case, the length is given in feet while the width is in inches. To calculate the area accurately in square inches, both dimensions need to be converted to the same unit. First, convert the length from feet to inches. Since 1 foot equals 12 inches, the length of $1\frac{1}{2}$ foot can be converted as follows: $\text{Length in inches} = \frac{1}{2} \text{ feet} \times 12 \text{ inches/foot} = 6 \text{ inches}$ Now, you have the dimensions in inches: - Length: 6 inches - Width: 1.5 inches Next, calculate the area by multiplying the length and width: $\text{Area} = \text{Length} \times \text{Width} = 6 \text{ inches} \times 1.5 \text{ inches} = 9 \text{ inch}^2$ Since the final calculation shows that the area is 9 square inches, which does not match any options listed, it suggests there may have been an error in the

9. If a car travels at 60 miles per hour, how far does it travel in 2.5 hours?

- A. 120 miles
- B. 150 miles**
- C. 180 miles
- D. 300 miles

To determine how far a car travels in a certain time at a constant speed, you can use the formula: $\text{Distance} = \text{Speed} \times \text{Time}$. In this case, the car is traveling at a speed of 60 miles per hour, and the time traveled is 2.5 hours. By substituting the values into the formula: $\text{Distance} = 60 \text{ miles/hour} \times 2.5 \text{ hours}$ Calculating this: $60 \times 2.5 = 150 \text{ miles}$. Thus, the car travels a distance of 150 miles in 2.5 hours. This aligns perfectly with the understanding of how distance, time, and speed relate to each other.

10. How do you convert $1\frac{1}{2}$ into an improper fraction?

- A. $\frac{3}{2}$
- B. $\frac{5}{6}$
- C. $\frac{2}{3}$
- D. $\frac{4}{3}$**

To convert the mixed number $1\frac{1}{2}$ into an improper fraction, you start by breaking down the components of the mixed number. The whole number part is 1, and the fractional part is $\frac{1}{2}$. First, you can express the whole number as a fraction that has the same denominator as the fractional part. Since the denominator of $\frac{1}{2}$ is 2, you can rewrite the whole number 1 as $\frac{2}{2}$. This gives you: $1 = \frac{2}{2}$ Next, you add this fraction to the fractional part: $\frac{2}{2} + \frac{1}{2} = \frac{(2 + 1)}{2} = \frac{3}{2}$. Therefore, the improper fraction that corresponds to the mixed number $1\frac{1}{2}$ is $\frac{3}{2}$. This matches the correct choice for the conversion, demonstrating the clear process of converting between mixed numbers and improper fractions. The correct answer to the conversion of $1\frac{1}{2}$ into an improper fraction is $\frac{3}{2}$.

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://saemathematics.examzify.com>

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

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