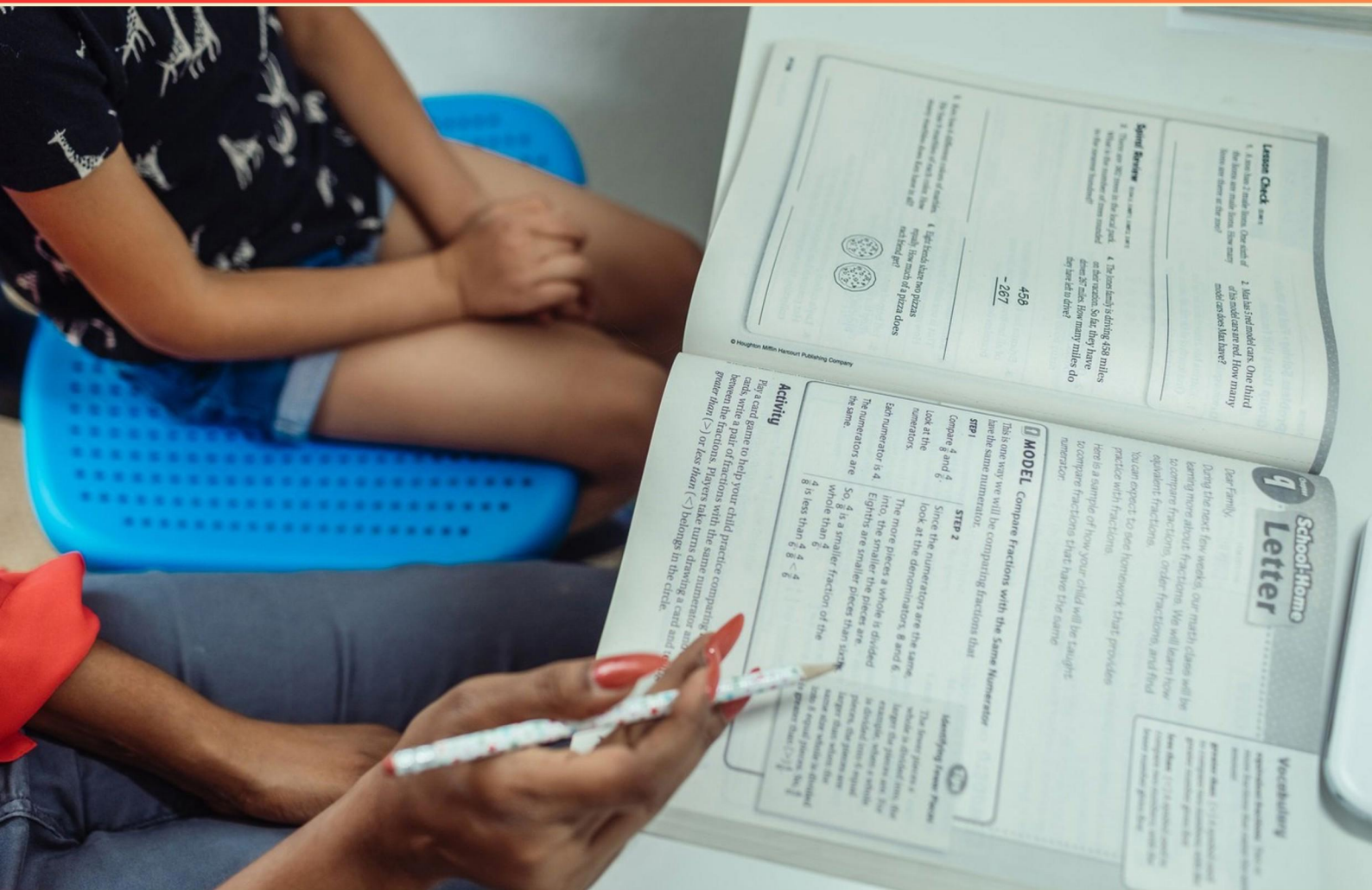


TEXES MATHEMATICS 4-8 (115) PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR
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. In 'soh cah toa', what trigonometric function does 'toa' refer to?
 - A. Sine
 - B. Cosine
 - C. Tangent
 - D. Cotangent
2. How do you calculate the circumference of a circle?
 - A. $2(\pi)\text{radius}$
 - B. $\pi \times \text{diameter}$
 - C. $\pi \times r^2$
 - D. $\text{radius} + \pi$
3. What is the slope-intercept form of the equation for a line with a slope of 3 and a y-intercept of -1?
 - A. $y = 3x + 1$
 - B. $y = 3x - 1$
 - C. $y = -3x + 1$
 - D. $y = -3x - 1$
4. In the quadratic formula, what does the variable 'c' represent?
 - A. The coefficient of x
 - B. The constant term
 - C. The coefficient of x^2
 - D. The root of the equation
5. Which of the following accurately describes rational numbers?
 - A. Any number that cannot be expressed as a fraction
 - B. Whole numbers greater than or equal to zero
 - C. Any number that can be expressed as a fraction
 - D. Numbers that are always positive
6. What is required for a set of ordered pairs to be considered a function?
 - A. All y-coordinates must be unique.
 - B. All x-coordinates must be unique.
 - C. Each x-coordinate must correspond to exactly one y-coordinate.
 - D. The total number of pairs must be odd.

7. What does mode refer to in a data set?

- A. The sum of all values
- B. The average value
- C. The number that appears most frequently
- D. The middle value when arranged in order

8. What is the value of x in the equation $5x = 10$?

- A. $x = 1$
- B. $x = 2$
- C. $x = 5$
- D. $x = 10$

9. Which type of angle measures exactly 90 degrees?

- A. Acute angle
- B. Obtuse angle
- C. Straight angle
- D. Right angle

10. Which property illustrates that changing the grouping of the addends does not change the sum?

- A. Commutative property
- B. Inverse property
- C. Associative property
- D. Distributive property

Answers

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

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Explanations

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1. In 'soh cah toa', what trigonometric function does 'toa' refer to?

- A. Sine
- B. Cosine
- C. Tangent**
- D. Cotangent

In the mnemonic "soh cah toa," each part refers to a specific trigonometric function and the relationship between the angles and sides of a right triangle. The 'toa' specifically stands for "tangent," which can be expressed in terms of the triangle's sides as the ratio of the length of the opposite side to the length of the adjacent side. To elaborate, for any angle in a right triangle, the tangent is defined as: $\tan(\theta) = \frac{\text{opposite}}{\text{adjacent}}$. This relationship is critical when solving problems involving right triangles, particularly when trying to find unknown angles or side lengths using trigonometric functions. Thus, 'toa' directly points to the tangent function in trigonometry, solidifying its role within the context of right triangle relationships.

2. How do you calculate the circumference of a circle?

- A. $2(\pi)\text{radius}$**
- B. $\pi \times \text{diameter}$
- C. $\pi \times r^2$
- D. $\text{radius} + \pi$

The calculation of the circumference of a circle is based on the relationship between the radius or diameter of the circle and the mathematical constant π . The correct formula for calculating circumference can be expressed in two ways depending on whether you use the radius or the diameter. Using the radius, the circumference is calculated by multiplying 2 by π and by the radius ($2\pi r$). This is because the radius is half of the diameter, and when you double the radius, you essentially calculate the perimeter of the circle based on its circular nature. Alternatively, if you are using the diameter, the circumference can also be calculated by multiplying π by the diameter (πd), since the diameter is twice the radius. As to the other options, while π times the diameter is also a correct method to find circumference, the option that directly uses the radius in the form of $2\pi r$ is specifically suitable for situations where the radius is known, which solidifies its correctness in the context of this question. The formula πr^2 , on the other hand, is used to calculate the area of a circle, not its circumference. The expression "radius + π " does not relate to the concept of circumference at all, making it irrelevant in this context. Thus

3. What is the slope-intercept form of the equation for a line with a slope of 3 and a y-intercept of -1?

- A. $y = 3x + 1$
- B. $y = 3x - 1$**
- C. $y = -3x + 1$
- D. $y = -3x - 1$

To derive the slope-intercept form of a line's equation, you need to utilize the formula $y = mx + b$, where m represents the slope of the line and b signifies the y-intercept. In this case, you are given a slope of 3 and a y-intercept of -1. Substituting these values into the formula, you replace m with 3 and b with -1. This results in the equation: $y = 3x - 1$. This formulation confirms that for every increase of 1 unit in x , y increases by 3 units, hence capturing the slope accurately. Additionally, it indicates that the line crosses the y-axis at -1, aligning with the given y-intercept. These specific values distinctly lead to the final equation, ensuring that the slope and y-intercept match the conditions of the problem accurately.

4. In the quadratic formula, what does the variable 'c' represent?

- A. The coefficient of x
- B. The constant term**
- C. The coefficient of x^2
- D. The root of the equation

In the quadratic formula, which is expressed as $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$, the variable c represents the constant term in the quadratic equation of the form $ax^2 + bx + c = 0$. When you look at the standard form of a quadratic equation, c is the term that does not involve the variable x . It essentially acts as a constant offset to the quadratic's graph, influencing where the parabola intersects the y-axis. Identifying c as the constant term is crucial for understanding how it interacts with the other components of the equation, such as the coefficients of x^2 and x , represented by a and b , respectively. This also highlights that c is not related to the roots of the equation or the coefficients of x or x^2 , thus helping to clarify its specific role within the quadratic formula context. Understanding the function of each term in the quadratic form is fundamental to solving quadratic equations effectively.

5. Which of the following accurately describes rational numbers?

- A. Any number that cannot be expressed as a fraction
- B. Whole numbers greater than or equal to zero
- C. Any number that can be expressed as a fraction**
- D. Numbers that are always positive

Rational numbers are defined as numbers that can be expressed in the form of a fraction, where both the numerator and the denominator are integers, and the denominator is not zero. This definition encompasses integers, whole numbers, and fractions, as long as they can be represented as a ratio of two integer values. For example, the numbers $\frac{1}{2}$, 3 (which can be expressed as $\frac{3}{1}$), and $-\frac{4}{5}$ all qualify as rational numbers because they can be expressed in fraction form. This broad definition also includes terminating and repeating decimals, emphasizing the versatility of rational numbers in various mathematical contexts. In contrast, the other options either describe sets of numbers that are not inclusive of all rational numbers or define concepts that are fundamentally different from the concept of rationality in numbers. For instance, the first option states that rational numbers cannot be expressed as a fraction, which is the opposite of the true definition. The second option, which limits itself to whole numbers greater than or equal to zero, does not encompass negative integers or fractions. Lastly, the assertion that rational numbers are always positive overlooks rational numbers such as $-\frac{1}{2}$, which are clearly rational yet negative. Thus, the identification of rational numbers as any numbers that

6. What is required for a set of ordered pairs to be considered a function?

- A. All y-coordinates must be unique.
- B. All x-coordinates must be unique.
- C. Each x-coordinate must correspond to exactly one y-coordinate.**
- D. The total number of pairs must be odd.

For a set of ordered pairs to be classified as a function, it is essential that each x-coordinate is associated with exactly one y-coordinate. This condition ensures that for any input value (represented by the x-coordinate), there is a unique output value (represented by the y-coordinate). This concept is fundamental in understanding functions, as it establishes a clear and predictable relationship between the variables. In practical terms, if you were to have any x-coordinate that corresponds to more than one y-coordinate, that would violate the definition of a function. For instance, if for an x-value of 2, the y-values were both 3 and 4, it would not fulfill the requirement of a function, since that x-value does not yield a unique y-value. This uniqueness is what allows functions to be predictable and ensures that they can be graphed as straight vertical lines, which do not intersect the curve at more than one point for a given x-value. Understanding this requirement is crucial for identifying functions in various mathematical contexts, from algebra to advanced calculus, as it serves as the foundation for more complex analyses of relationships between variables.

7. What does mode refer to in a data set?

- A. The sum of all values
- B. The average value
- C. The number that appears most frequently**
- D. The middle value when arranged in order

Mode refers to the value in a data set that occurs most frequently. It is a measure of central tendency, just like mean and median, but specifically identifies the number with the highest frequency of occurrence. For example, in the data set {1, 2, 2, 3, 4}, the mode is 2 since it appears more times than any other number. Understanding the mode is useful in various statistical analyses, especially when dealing with categorical data where identifying the most common category is important. In contrast to other measures, the mode can be particularly meaningful in situations where the most common item or value is of interest, irrespective of how the other data points are distributed.

8. What is the value of x in the equation $5x = 10$?

- A. $x = 1$
- B. $x = 2$**
- C. $x = 5$
- D. $x = 10$

To find the value of x in the equation $5x = 10$, you need to isolate x on one side of the equation. This can be done by dividing both sides of the equation by 5. Start with the original equation: $5x = 10$. Now, divide both sides by 5: $5x / 5 = 10 / 5$. This simplifies to: $x = 2$. Therefore, the value of x is 2, which is why this option is the correct answer. Isolating the variable in this way is a fundamental algebraic technique that can be applied to similar equations involving multiplication of a variable.

9. Which type of angle measures exactly 90 degrees?

- A. Acute angle
- B. Obtuse angle
- C. Straight angle
- D. Right angle**

A right angle measures exactly 90 degrees. This definition is fundamental in geometry and is crucial for distinguishing different types of angles. An acute angle measures less than 90 degrees, while an obtuse angle measures more than 90 degrees but less than 180 degrees. A straight angle, on the other hand, measures exactly 180 degrees. Recognizing these distinctions helps to understand the various properties and applications of angles in geometric figures and real-world situations. The concept of a right angle is essential in many areas of mathematics, including trigonometry and construction, where it serves as a building block for more complex concepts.

10. Which property illustrates that changing the grouping of the addends does not change the sum?

- A. Commutative property
- B. Inverse property
- C. Associative property**
- D. Distributive property

The property that illustrates that changing the grouping of the addends does not change the sum is the Associative property. This property states that when adding three or more numbers, the way in which the numbers are grouped does not affect the overall sum. For example, if you have the numbers 2, 3, and 4, you can group them as $(2 + 3) + 4$ or $2 + (3 + 4)$, and in both cases, the sum will be 9. This property is crucial because it allows for flexibility in calculations, enabling students to find easier ways to add numbers, especially when working with larger sets of numbers or when looking to simplify computations. In contrast, the Commutative property pertains to the order of the addends, stating that changing the order in which they are added still yields the same sum. The Inverse property relates to addition and subtraction, where an addend and its inverse (the negative) combine to equal zero. The Distributive property connects multiplication and addition, showing how a multiplicative expression can be distributed over an additive one. Each of these properties serves a distinct role in arithmetic, but it is the Associative property that directly addresses the grouping of numbers.

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://texasmath4to8.examzify.com>

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

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