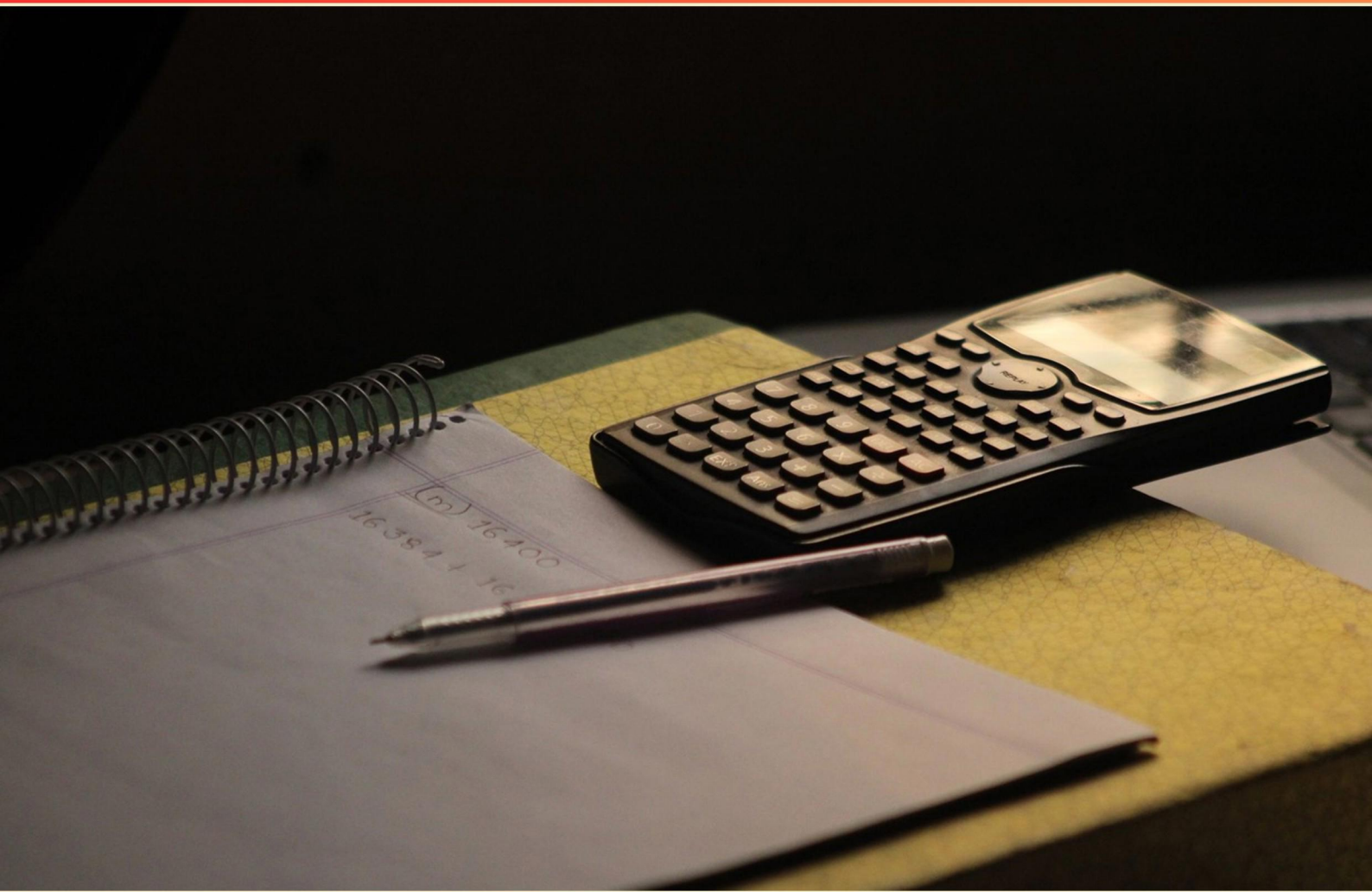


FTCE GENERAL KNOWLEDGE MATH PRACTICE TEST (SAMPLE)

STUDY GUIDE



Prepare with structure. Pass with confidence



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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 term refers to the bottom of a fraction that shows the change in the X coordinate?
 - A. Run
 - B. Rise
 - C. Slope
 - D. Ratio
2. Which triangle is described by having exactly two equal sides?
 - A. Scalene triangle
 - B. Equilateral triangle
 - C. Obtuse triangle
 - D. Isosceles triangle
3. Which of the following describes nonnegative numbers?
 - A. All negative numbers
 - B. All numbers including zero
 - C. Only whole numbers
 - D. Fractional numbers only
4. When converting $\frac{4}{5}$ to a decimal form, what is the equivalent?
 - A. 0.5
 - B. 0.6
 - C. 0.8
 - D. 0.4
5. What distinguishes an acute triangle from other triangles?
 - A. It has one right angle
 - B. It has an angle greater than 90°
 - C. All three angles are less than 90°
 - D. It has two congruent sides
6. What is the result when zero is divided by any number?
 - A. One
 - B. Zero
 - C. Infinity
 - D. Undefined

- 7. Which of the following represents the definition of GCF?**
- A. The smallest whole number that can divide another number
 - B. The biggest prime factor of a number
 - C. The largest number that can divide two or more numbers evenly
 - D. The product of two or more numbers
- 8. Which operation is described by the quotient of a dividend and a divisor?**
- A. Subtraction
 - B. Multiplication
 - C. Division
 - D. Addition
- 9. What is the value of $5!$ (5 factorial)?**
- A. 120
 - B. 60
 - C. 100
 - D. 24
- 10. How is the probability of event E calculated?**
- A. Number of total outcomes / Number of outcomes favorable to Event E
 - B. Number of outcomes favorable to Event E / Total number of outcomes possible
 - C. Number of outcomes favorable to Event E + Total number of outcomes possible
 - D. Number of outcomes unfavorable to Event E / Total number of outcomes possible

Answers

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

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Explanations

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1. What term refers to the bottom of a fraction that shows the change in the X coordinate?

- A. Run**
- B. Rise
- C. Slope
- D. Ratio

The term that refers to the bottom of a fraction in the context of changes in the X coordinate is commonly known as "Run." In the calculation of slope for a line in a coordinate plane, slope is defined as the ratio of the change in the vertical direction (Rise) to the change in the horizontal direction (Run). Here, the Run indicates how much the X coordinate changes as you move from one point to another on the line. In the slope formula (Rise/Run), Run specifically quantifies the horizontal distance between two points, making it a crucial component for understanding how steeply a line ascends or descends. Recognizing Run as the denominator highlights its role in measuring horizontal movement, distinguishing it from the vertical movement measured by Rise.

2. Which triangle is described by having exactly two equal sides?

- A. Scalene triangle
- B. Equilateral triangle
- C. Obtuse triangle
- D. Isosceles triangle**

The triangle that has exactly two equal sides is known as an isosceles triangle. This type of triangle is characterized by the presence of two sides that are of the same length, which leads to two angles within the triangle also being equal. This specific property of having two equal sides distinguishes isosceles triangles from other types of triangles, as they may have different arrangements of side lengths and angles. In contrast, a scalene triangle has all sides of different lengths and no equal angles. An equilateral triangle has all three sides equal, making it a special case of an isosceles triangle but not the correct answer here since it does not meet the criteria of having exactly two sides equal. An obtuse triangle refers to a triangle with one angle greater than 90 degrees, which does not specifically relate to the lengths of its sides. Thus, isosceles is the precise term to describe the triangle with exactly two equal sides.

3. Which of the following describes nonnegative numbers?

- A. All negative numbers
- B. All numbers including zero**
- C. Only whole numbers
- D. Fractional numbers only

Nonnegative numbers are defined as numbers that are either positive or zero. This means that they include all positive numbers along with zero itself. The correct choice accurately captures this definition, stating that nonnegative numbers consist of all numbers including zero. In contrast, the other options do not adequately describe nonnegative numbers. For instance, all negative numbers are explicitly excluded from the category of nonnegative numbers. Whole numbers typically refer to nonnegative integers, which do not include fractions, but this definition is more limited than what is needed. Lastly, fractional numbers can be either positive or negative; thus, referencing fractional numbers alone does not encompass the complete set of nonnegative numbers, particularly since it would exclude zero.

4. When converting $\frac{4}{5}$ to a decimal form, what is the equivalent?

- A. 0.5
- B. 0.6
- C. 0.8**
- D. 0.4

To convert a fraction like $\frac{4}{5}$ to its decimal equivalent, you divide the numerator by the denominator. Here, you take 4 (the numerator) and divide it by 5 (the denominator). Performing this calculation, you get $4 \div 5$, which equals 0.8. This shows that $\frac{4}{5}$ as a decimal is accurately represented by 0.8, which is why this option is correct. In decimal terms, this conversion demonstrates how fractions can express quantities in varying forms, allowing for easier calculations and comparisons in different contexts.

5. What distinguishes an acute triangle from other triangles?

- A. It has one right angle
- B. It has an angle greater than 90°
- C. All three angles are less than 90°**
- D. It has two congruent sides

An acute triangle is characterized by having all three angles that measure less than 90 degrees. This distinct feature allows it to be differentiated from other types of triangles. For instance, a right triangle includes one angle that is exactly 90 degrees, while an obtuse triangle has one angle that is greater than 90 degrees. In contrast, the acute triangle maintains the condition that every angle remains under the 90-degree threshold. The presence of two congruent sides is relevant to isosceles triangles but does not specifically relate to the acute triangle's classification in terms of angle measures. Therefore, the defining characteristic of having all three angles less than 90 degrees aptly highlights what makes an acute triangle unique among other triangle types.

6. What is the result when zero is divided by any number?

- A. One
- B. Zero**
- C. Infinity
- D. Undefined

When zero is divided by any non-zero number, the result is always zero. This is because division can be understood as distributing a number into equal parts. If you are trying to divide zero into any number of parts, there is nothing to distribute, so each part remains zero. In mathematical terms, the operation $(0 \div x)$ (where x is any non-zero number) equals 0. This concept further helps in demonstrating that zero divided by any number maintains its identity of being zero, regardless of the value of the divisor. The other options represent ideas that do not hold in this context: one does not apply since zero is involved; infinity suggests that the result grows endlessly, which is inaccurate; and undefined refers to division by zero itself, where the divisor is zero, leading to indeterminate forms.

7. Which of the following represents the definition of GCF?

- A. The smallest whole number that can divide another number
- B. The biggest prime factor of a number
- C. The largest number that can divide two or more numbers evenly**
- D. The product of two or more numbers

The definition of the greatest common factor (GCF) revolves around its role in identifying common divisors among a set of numbers. The GCF is specifically the largest integer that can exactly divide each of the numbers in a specified set without leaving a remainder. For instance, if you consider the numbers 12 and 18, the factors of these two numbers are 1, 2, 3, 4, 6, and 12 for 12, and 1, 2, 3, 6, 9, and 18 for 18. The common factors are 1, 2, 3, and 6, with 6 being the greatest of these; thus, it is the GCF of both numbers. The other choices do not accurately represent what GCF means. The first choice describes a concept that might relate to factors in general but does not specify the need for it to be the largest among common factors. The second choice addresses prime factors but does not convey the requirement for factors to be shared among multiple numbers. The last choice mistakenly describes the GCF as a product rather than discussing divisibility among integers. Thus, the description of the GCF as the largest number that

8. Which operation is described by the quotient of a dividend and a divisor?

- A. Subtraction
- B. Multiplication
- C. Division**
- D. Addition

The operation described as the quotient of a dividend and a divisor is division. When you divide a number (the dividend) by another number (the divisor), the result is known as the quotient. For example, in the division problem $12 \div 3$, 12 is the dividend and 3 is the divisor, resulting in a quotient of 4. Understanding division as the operation that finds how many times the divisor fits into the dividend is fundamental in mathematics. It is one of the four basic arithmetic operations, along with addition, subtraction, and multiplication. Each of these operations has its own properties and uses, but division specifically focuses on the relationship between the dividend and divisor to yield the quotient. The other operations—subtraction, multiplication, and addition—serve different purposes and are defined by their unique processes and outcomes. Subtraction finds the difference between two numbers, multiplication combines numbers in repeated addition, and addition combines quantities to find a total. Thus, the correct identification of division for this operation is crucial for understanding basic arithmetic principles.

9. What is the value of 5! (5 factorial)?

- A. 120**
- B. 60
- C. 100
- D. 24

The value of 5! (5 factorial) is calculated by multiplying all positive integers from 1 up to 5. Specifically, this means: $5! = 5 \times 4 \times 3 \times 2 \times 1$. Breaking it down: - Start with 5. - Multiply by 4: $5 \times 4 = 20$. - Then multiply by 3: $20 \times 3 = 60$. - Next, multiply by 2: $60 \times 2 = 120$. - Finally, multiply by 1, which does not change the product. Thus, the final result is 120. This calculation confirms that the correct answer reflects the definition of factorial, where $n! = n \times (n-1) \times \dots \times 2 \times 1$. Consequently, the value of 5! is indeed 120.

10. How is the probability of event E calculated?

- A. Number of total outcomes / Number of outcomes favorable to Event E
- B. Number of outcomes favorable to Event E / Total number of outcomes possible**
- C. Number of outcomes favorable to Event E + Total number of outcomes possible
- D. Number of outcomes unfavorable to Event E / Total number of outcomes possible

The probability of an event E is defined as the ratio of the number of outcomes that are favorable to event E to the total number of possible outcomes. This concept is based on the premise that probability measures the likelihood of an event occurring, and it is expressed mathematically as $P(E) = (\text{Number of favorable outcomes}) / (\text{Total number of possible outcomes})$. In this case, the favorable outcomes are those specific results that align with event E occurring, while the total outcomes encompass all the possible results that could happen in the given scenario. This ratio provides a clear representation of how likely event E is to happen compared to all conceivable outcomes, leading to an intuitive understanding of the event's chance of occurrence. Other approaches, such as adding favorable outcomes to total outcomes or calculating unfavorable outcomes, do not align with the standard definition of probability, which centers around the relationship between favorable outcomes and total possible outcomes. This highlights the importance of understanding the correct formula for probability to make accurate calculations in related problems.

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://ftcegeneralknowledgemath.examzify.com>

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

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