

# WEST-B Mathematics Practice Test (Sample)

## Study Guide



**Everything you need from our exam experts!**

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# Table of Contents

<b>Copyright</b> .....	<b>1</b>
<b>Table of Contents</b> .....	<b>2</b>
<b>Introduction</b> .....	<b>3</b>
<b>How to Use This Guide</b> .....	<b>4</b>
<b>Questions</b> .....	<b>5</b>
<b>Answers</b> .....	<b>8</b>
<b>Explanations</b> .....	<b>10</b>
<b>Next Steps</b> .....	<b>16</b>

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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. Which of the following mathematical concepts is included in the WEST-B Mathematics Practice Test?**
  - A. Trigonometry**
  - B. Calculus**
  - C. Probability**
  - D. Complex Numbers**
  
- 2. What do you call a plane figure with four equal sides and four right angles?**
  - A. Rectangle**
  - B. Square**
  - C. Rhombus**
  - D. Quadrilateral**
  
- 3. What do you call the longest side of a right triangle?**
  - A. Adjacent Side**
  - B. Hypotenuse**
  - C. Opposite Side**
  - D. Vertical Side**
  
- 4. How are supplementary angles defined?**
  - A. Two angles that are equal**
  - B. Two angles whose measures add up to 90 degrees**
  - C. Two angles whose measures add up to 180 degrees**
  - D. Two angles that form a straight line**
  
- 5. What is a term that refers to a pair of equal or equivalent ratios?**
  - A. Fraction**
  - B. Equation**
  - C. Proportion**
  - D. Ratio**

6. Which term refers to creating a mirror image of a figure on the opposite side of a line?
- A. Slide transformation
  - B. Flip transformation
  - C. Rotate transformation
  - D. Scale transformation
7. What term describes a part or item forming a piece of a whole?
- A. Ratio
  - B. Fraction
  - C. Sum
  - D. Whole Number
8. How do you calculate the slope of a line given two points,  $(x_1, y_1)$  and  $(x_2, y_2)$ ?
- A. Slope  $(m) = (x_2 - x_1) / (y_2 - y_1)$
  - B. Slope  $(m) = (y_2 - y_1) / (x_2 - x_1)$
  - C. Slope  $(m) = (y_1 + y_2) / (x_1 + x_2)$
  - D. Slope  $(m) = (x_1 - x_2) / (y_2 + y_1)$
9. What is the term for the measure of center in a set of numerical data?
- A. Mean
  - B. Median
  - C. Mode
  - D. Range
10. Calculate the circumference of a circle with a diameter of 10.
- A. Circumference =  $\pi \times 5$
  - B. Circumference =  $20\pi$
  - C. Circumference =  $\pi \times \text{diameter}$
  - D. Circumference =  $10\pi$

## Answers

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

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## **Explanations**

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**1. Which of the following mathematical concepts is included in the WEST-B Mathematics Practice Test?**

**A. Trigonometry**

**B. Calculus**

**C. Probability**

**D. Complex Numbers**

The WEST-B Mathematics Practice Test includes various mathematical concepts that are foundational for teaching and understanding mathematics at the primary and secondary levels. Probability is a key area of focus within the test. In the context of the WEST-B, probability is essential because it encompasses the study of randomness and uncertainty, skills that students must develop in a comprehensive mathematics education.

Understanding basic probability concepts helps educators teach students about real-world applications, such as statistics, risk assessment, and data interpretation. Additionally, a solid grasp of probability contributes to logical reasoning and critical thinking skills, which are vital for academic success in mathematics and related fields. While other concepts like trigonometry and calculus may indeed be important, they aren't necessarily emphasized in the same way within the context of the WEST-B Mathematics Practice Test. Their focus is primarily on concepts that align more closely with the core curriculum that future teachers will be expected to deliver.

**2. What do you call a plane figure with four equal sides and four right angles?**

**A. Rectangle**

**B. Square**

**C. Rhombus**

**D. Quadrilateral**

A plane figure with four equal sides and four right angles is specifically categorized as a square. The characteristics of a square include not only having four equal length sides but also that each internal angle measures 90 degrees, which is a defining trait of right angles. A square is a specific type of rectangle since all angles are right angles, but it is distinct because of its equal side lengths. While a rectangle also has right angles, it does not require the sides to be equal, allowing for varying lengths. A rhombus, on the other hand, has equal sides but does not necessarily have right angles; in fact, its angles can be acute or obtuse. A quadrilateral is a broader term that encompasses any four-sided figure, including squares, rectangles, and rhombuses, without specifying side lengths or angles. Therefore, referring to this figure as a square is precise as it fulfills all conditions specified in the question.

### 3. What do you call the longest side of a right triangle?

- A. Adjacent Side
- B. Hypotenuse**
- C. Opposite Side
- D. Vertical Side

In a right triangle, the longest side is known as the hypotenuse. This designation comes from the geometric properties of right triangles, where one angle measures 90 degrees. The hypotenuse is always opposite the right angle and is longer than either of the other two sides, which are referred to as the adjacent side and the opposite side. The adjacent side is the one that forms one of the angles in the right triangle, while the opposite side is the side opposite to the angle in question. The distinction is crucial in trigonometry, where the lengths of the sides relative to the angles are fundamental in defining various ratios. The vertical side terminology is not standard in this context and does not accurately describe any side in terms of length or relation to the right angle. Thus, identifying the hypotenuse as the longest side underscores its role in the Pythagorean theorem, which states that the square of the hypotenuse's length equals the sum of the squares of the other two sides' lengths. This relationship further emphasizes why the hypotenuse stands out as the longest side in a right triangle.

### 4. How are supplementary angles defined?

- A. Two angles that are equal
- B. Two angles whose measures add up to 90 degrees
- C. Two angles whose measures add up to 180 degrees**
- D. Two angles that form a straight line

Supplementary angles are defined specifically as two angles whose measures add up to 180 degrees. This definition stems from the properties of angles in a plane, where a straight angle measures 180 degrees. Therefore, when two angles combine to form a straight angle, they are classified as supplementary. This concept is useful in various geometric contexts, such as when dealing with parallel lines and transversals, where certain pairs of angles can be identified as supplementary based on their relationships. The notion that supplementary angles are connected to forming a straight line also reinforces their importance in understanding angle relationships in geometry. It's important to remember that while angles could also be equal or add up to other specific values, these characteristics relate to different classifications of angles and do not pertain to the definition of supplementary angles. Thus, the distinction that supplementary angles specifically total 180 degrees is paramount for correctly defining their relationship.

**5. What is a term that refers to a pair of equal or equivalent ratios?**

- A. Fraction**
- B. Equation**
- C. Proportion**
- D. Ratio**

The term that refers to a pair of equal or equivalent ratios is a proportion. A proportion states that two ratios are equivalent, which means that the relationship between the two quantities represented in the ratios is the same. For instance, if you have the ratio 1:2 and another ratio 2:4, these can be expressed as a proportion because they represent the same relationship. In mathematical terms, a proportion can be written in the form  $a/b = c/d$ , where  $a$ ,  $b$ ,  $c$ , and  $d$  are quantities and the cross products ( $a*d$  and  $b*c$ ) are equal. This concept is fundamental in mathematics, particularly in solving problems involving similar figures, scaling, and comparing quantities. The other terms do not correctly represent the concept of two ratios being equal: a fraction defines a single quantity expressed as a part of a whole, an equation refers to a statement that two expressions are equal, and a ratio indicates a relationship between two numbers, but does not inherently imply equivalence between two ratios.

**6. Which term refers to creating a mirror image of a figure on the opposite side of a line?**

- A. Slide transformation**
- B. Flip transformation**
- C. Rotate transformation**
- D. Scale transformation**

The term that refers to creating a mirror image of a figure on the opposite side of a line is "flip transformation." This type of transformation is also known as reflection. When a shape is reflected across a line, each point of the original figure is mapped to a point on the opposite side of the line, at an equal distance from the line. This results in a figure that is a mirror image of the original. The other transformation types serve different purposes: a slide transformation involves moving a shape without changing its orientation; a rotate transformation involves turning the shape around a fixed point; and a scale transformation changes the size of a shape while maintaining its proportions. Each of these transformations has distinct characteristics that do not involve creating a mirror image across a line.

7. What term describes a part or item forming a piece of a whole?

A. Ratio

**B. Fraction**

C. Sum

D. Whole Number

The term that accurately describes a part or item that forms a piece of a whole is a fraction. A fraction represents a value that is part of a whole, expressed with a numerator and a denominator. For example, in the fraction  $\frac{3}{4}$ , the numerator (3) indicates how many parts we have, while the denominator (4) indicates how many total parts make up the whole. This concept is fundamental in mathematics as it allows for the representation and calculation of parts of quantities and is frequently used in various applications ranging from basic arithmetic to advanced mathematics. In contrast, a ratio is a comparative relationship between two numbers, while a sum refers to the result of adding numbers together. A whole number, on the other hand, is an integer that does not include fractions or decimals and is considered complete in itself. Therefore, among the choices provided, a fraction is the most fitting term for describing a part of a whole.

8. How do you calculate the slope of a line given two points,  $(x_1, y_1)$  and  $(x_2, y_2)$ ?

A. Slope  $(m) = (x_2 - x_1) / (y_2 - y_1)$

**B. Slope  $(m) = (y_2 - y_1) / (x_2 - x_1)$**

C. Slope  $(m) = (y_1 + y_2) / (x_1 + x_2)$

D. Slope  $(m) = (x_1 - x_2) / (y_2 + y_1)$

To calculate the slope of a line given two points,  $(x_1, y_1)$  and  $(x_2, y_2)$ , the formula involves determining how much the y-values change for a given change in the x-values. The correct formula is the difference in y-values divided by the difference in x-values, which is represented as: Slope  $(m) = (y_2 - y_1) / (x_2 - x_1)$ . This definition of slope reflects the concept of rise over run, where "rise" is the change in the vertical direction (from  $y_1$  to  $y_2$ ) and "run" is the change in the horizontal direction (from  $x_1$  to  $x_2$ ). By applying this calculation, one can understand the steepness and direction of the line formed by the two points. When comparing this with the other choices, the other formulas do not accurately reflect the relationship between the coordinates needed to find the slope. For instance, the calculation involving addition of the points does not represent any meaningful relationship in slope calculation, and the formulas that suggest swapping x and y differences lead to incorrect interpretations of slope. Thus, the correct approach is clearly followed in the stated formula, making it vital for understanding slope in the context of linear relationships.

9. What is the term for the measure of center in a set of numerical data?

- A. Mean
- B. Median**
- C. Mode
- D. Range

The term for the measure of center in a set of numerical data is the median. The median is defined as the middle value when a data set is organized in ascending or descending order. If the data set has an odd number of observations, the median is the value that falls right in the center. For an even number of observations, the median is the average of the two middle values. This makes the median a robust measure of central tendency, especially useful in datasets with outliers, as it provides a better representation of the central location of the data compared to measures that can be influenced by extreme values. In contrast, the mean is calculated by summing all values and dividing by the number of values, which can be skewed by outliers. The mode refers to the most frequently occurring value in a dataset. The range, representing the difference between the highest and lowest values, does not provide information about centrality at all. These distinctions highlight why the median is specifically recognized as a measure of center in data analysis.

10. Calculate the circumference of a circle with a diameter of 10.

- A. Circumference =  $\pi \times 5$
- B. Circumference =  $20\pi$
- C. Circumference =  $\pi \times \text{diameter}$**
- D. Circumference =  $10\pi$

The correct approach to calculating the circumference of a circle involves using the formula that relates the circumference to the diameter. The formula states that the circumference equals  $\pi$  multiplied by the diameter. In this case, the diameter is given as 10. Therefore, using the formula, we can express the circumference as: Circumference =  $\pi \times \text{diameter} = \pi \times 10$ . The correct answer should reflect this understanding. While the chosen response identifies the relationship correctly, it's important to note that the circumference of the circle can also be directly computed from the given diameter. Thus, understanding the properties of circles and being able to apply the appropriate formulas is crucial for solving such problems accurately. Taking the actual diameter of 10 into consideration, it is also clear that if one calculates directly based on the diameter, they would arrive at the circumference being  $10\pi$ . This clarity aids in solidifying the concept of circumference in the geometry of circles.

## 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](mailto:hello@examzify.com).**

**Or visit your dedicated course page for more study tools and resources:**

**<https://westbmath.examzify.com>**

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

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