# GEOMETRY REGENTS 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.

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# 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!

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# Questions

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**1. What defines a rectangle?**

A. All sides are equal.

B. It has four right angles and congruent diagonals.

C. It has exactly one pair of parallel sides.

D. Its diagonals bisect each other perpendicularly.

**2. What is the sum of the measures of supplementary angles?**

A. 90 degrees

B. 180 degrees

C. 270 degrees

D. 360 degrees

**3. What is an example of point symmetry?**

A. Rotating a shape

B. Turning upside down and remaining the same

C. Reflecting over an axis

D. Scaling an object

**4. In geometry, what does the term 'transversal' refer to?**

A. A line that runs parallel to another line

B. A line that intersects a circle

C. A line that crosses two or more lines at distinct points

D. A line segment that connects two vertices of a polygon

**5. What relationship does the tangent squared share with the secant in a tangent-secant problem?**

A. t^2 = p + s

B. t^2 = p(s)

C. t^2 = s/p

D. t^2 = s + p

**6. What is the sum of the interior angles of a polygon with n sides?**

A. 180n

B. 180(n-2)

C. 360

D. 90(n-2)

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**7. What is the method to prove that a figure is a square?**

A. Show all sides are equal and diagonals are equal

B. Show only one pair of parallel sides

C. Show two pairs of opposite sides are equal

D. Show angles are right angles

**8. What does the term "similarity ratio" refer to in polygons?**

A. The ratio of the areas of two similar figures

B. The ratio of the lengths of corresponding sides of two similar figures

C. The ratio of the perimeters of two similar figures

D. The ratio of the angles of two similar triangles

**9. What formula is used to find the measure of an angle inside a circle?**

A. Half the difference of the two intercepted arcs

B. Half the sum of the two intercepted arcs

C. The measure of the larger arc alone

D. Sum of the two angles

**10. What are vertical angles?**

A. Angles that sum to 90 degrees

B. Angles opposite each other when two lines intersect

C. Angles that are equal to 180 degrees

D. Angles formed by the intersection of parallel lines

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# Answers

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

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# Explanations

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## 1. What defines a rectangle?

A. All sides are equal.

B. It has four right angles and congruent diagonals.

C. It has exactly one pair of parallel sides.

D. Its diagonals bisect each other perpendicularly.

*A rectangle is specifically defined as a quadrilateral that has four right angles. An important property of rectangles is that the diagonals are congruent, meaning they are equal in length. Therefore, the statement that a rectangle has four right angles and congruent diagonals accurately captures these defining characteristics. In contrast, while all sides being equal describes a square, it does not define a rectangle. A rectangle also cannot be defined by having one pair of parallel sides, as all quadrilaterals have at least one pair of parallel sides due to their geometry. Lastly, the property that diagonals bisect each other perpendicularly pertains to rhombuses and is not a defining trait of rectangles. Thus, the chosen statement effectively highlights the unique aspects of rectangles among quadrilaterals.*

## 2. What is the sum of the measures of supplementary angles?

A. 90 degrees

B. 180 degrees

C. 270 degrees

D. 360 degrees

*Supplementary angles are defined as two angles whose measures add up to 180 degrees. This definition is central to understanding the concept of supplementary angles in geometry. For example, if one angle measures 120 degrees, its supplementary angle would measure 60 degrees, as 120 + 60 = 180 degrees. Therefore, when presented with a question regarding the sum of the measures of supplementary angles, the correct answer reflects this fundamental property of supplementary angles, which is 180 degrees. The other options represent different sums that pertain to other geometric relationships but do not apply in this context of supplementary angles.*

## 3. What is an example of point symmetry?

A. Rotating a shape

B. Turning upside down and remaining the same

C. Reflecting over an axis

D. Scaling an object

*Point symmetry occurs when a shape or object can be rotated 180 degrees around a central point and appears unchanged. In this case, turning an object upside down and having it remain the same demonstrates this concept perfectly. For example, if you take the letter "S" and rotate it 180 degrees around its center point, the orientation and appearance of the letter do not change. This illustrates point symmetry because the object looks identical after being flipped. The other options represent different types of symmetry or transformations. Rotating a shape does not necessarily mean it will remain identical unless specific conditions are met, such as having a rotational symmetry. Reflecting over an axis produces mirror imagery rather than a counterpart on the opposite side of a point. Scaling an object changes its size but does not maintain the same proportions after being flipped or rotated. Thus, the point symmetry demonstrated in the turning upside down scenario highlights why it is the correct choice.*

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## 4. In geometry, what does the term 'transversal' refer to?

A. A line that runs parallel to another line

B. A line that intersects a circle

C. A line that crosses two or more lines at distinct points

D. A line segment that connects two vertices of a polygon

*The term 'transversal' in geometry specifically refers to a line that crosses two or more lines at distinct points. When a transversal intersects parallel lines, it creates several angles that have special relationships, such as corresponding angles, alternate interior angles, and consecutive interior angles. Understanding the role of a transversal is crucial for solving problems related to angle relationships and for proving theorems regarding parallel lines. The other definitions provided do not accurately describe what a transversal is. For instance, a line that runs parallel to another does not intersect it, hence cannot be a transversal; a line that intersects a circle refers to a secant, and a line segment that connects two vertices of a polygon is more accurately described as a chord or diagonal, depending on the context. Therefore, the best definition in this context is that a transversal is a line that intersects two or more other lines at distinct points.*

## 5. What relationship does the tangent squared share with the secant in a tangent-secant problem?

A. t^2 = p + s

B. t^2 = p(s)

C. t^2 = s/p

D. t^2 = s + p

*In a tangent-secant problem, the relationship between the tangent segment and the secant segment is expressed through the specific formula \( t^2 = p(s) \). Here, \( t \) represents the length of the tangent segment from the external point to the point of tangency on the circle; \( p \) is the length of the secant segment from the external point to the circle, and \( s \) is the length of the remainder of the secant segment from the intersection point on the circle to the second intersection point. This formula arises from the power of a point theorem, which deals with the lengths of segments formed when a secant and a tangent intersect at a point outside a circle. It essentially states that the square of the length of the tangent segment is equal to the product of the entire secant length and the external part of the secant. Understanding this relationship clarifies how tangent and secant segments interact in problems involving circles, reinforcing fundamental geometric principles and aiding in solving various geometry problems related to circle theorems.*

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## 6. What is the sum of the interior angles of a polygon with n sides?

A. 180n

B. 180(n-2)

C. 360

D. 90(n-2)

*The formula for calculating the sum of the interior angles of a polygon with n sides is derived from the relationship that the sum is equal to 180 degrees multiplied by the number of triangles that can be formed within that polygon. For any polygon, you can divide it into (n - 2) triangles by drawing diagonals from one vertex to all other non-adjacent vertices. Each triangle has interior angles that sum up to 180 degrees. Therefore, when you multiply the number of triangles, (n - 2), by the sum of the angles in each triangle (180 degrees), you arrive at the formula for the sum of the interior angles: Sum of interior angles = 180(n - 2). This understanding is crucial for solving geometry problems involving polygons, as it not only helps in finding the total sum but also in deducing various properties related to the angles and sides of the polygon. The other provided choices do not correctly represent the sum of the interior angles for polygons. For instance, 180n incorrectly suggests that the angles are just a linear function of the sides without accounting for the geometric configuration of triangles. Meanwhile, 360 does not scale with the number of sides n and only represents the sum of angles in a*

## 7. What is the method to prove that a figure is a square?

A. Show all sides are equal and diagonals are equal

B. Show only one pair of parallel sides

C. Show two pairs of opposite sides are equal

D. Show angles are right angles

*To demonstrate that a figure is a square, one must confirm that all sides are equal in length and that the diagonals are also equal. This is essential because a square is a specific type of rectangle that not only has equal opposite sides and right angles but also has all four sides equal in length. When all sides are equal, the figure is at least a rhombus. However, for it to also be classified as a square, the diagonals must be equal in addition to the sides being equal. Equal diagonals are a characteristic of rectangles, and since a square is a rectangle as well, fulfilling both criteria confirms that the figure is indeed a square. In contrast, simply demonstrating one pair of parallel sides does not provide sufficient evidence of the properties required for a square. Showing only two pairs of opposite sides being equal describes a parallelogram, which could include various types of quadrilaterals, not specifically a square. Lastly, while proving that all angles are right angles indicates a rectangle, without the equal sides condition, the figure cannot be confirmed as a square. Therefore, the method that accurately establishes a figure as a square requires the verification of both equal sides and equal diagonals.*

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## 8. What does the term "similarity ratio" refer to in polygons?

A. The ratio of the areas of two similar figures

B. The ratio of the lengths of corresponding sides of two similar figures

C. The ratio of the perimeters of two similar figures

D. The ratio of the angles of two similar triangles

*The term "similarity ratio" specifically refers to the ratio of the lengths of corresponding sides of two similar figures. When two polygons are similar, it means that their corresponding angles are equal and the lengths of their corresponding sides are in proportion. For example, if one triangle has sides that measure 2, 3, and 4, and another triangle has sides measuring 4, 6, and 8, the similarity ratio would be the ratio of any pair of corresponding sides, such as 2:4, which simplifies to 1:2. This consistent ratio between all corresponding sides illustrates that the two figures are indeed similar. In contrast, the ratio of the areas of two similar figures is related to the square of the similarity ratio and does not directly represent what is meant by "similarity ratio." Similarly, the ratio of the perimeters is equal to the similarity ratio, but since it involves perimeter rather than the more fundamental side lengths, it does not directly define the similarity ratio. The angles of two similar triangles are equal, but their ratio does not represent a numerical relationship as side lengths do. Thus, the proper definition of the similarity ratio is firmly grounded in the proportionality of the corresponding sides of similar shapes.*

## 9. What formula is used to find the measure of an angle inside a circle?

A. Half the difference of the two intercepted arcs

B. Half the sum of the two intercepted arcs

C. The measure of the larger arc alone

D. Sum of the two angles

*To find the measure of an angle formed by two chords that intersect inside a circle, the appropriate formula is indeed to take half the sum of the measures of the intercepted arcs. This means if you have two arcs created by the points where the chords intersect the circle, you can add the measures of these two arcs together and then divide by two to find the angle's measure. This relationship comes from the properties of circles and the way angles relate to arcs. Since the angle is formed by the intersection of the two chords, it's influenced by the arcs it "opens up" to, capturing a portion of each. Therefore, using half the sum accurately describes how the angle is influenced by both arcs. Other methods might suggest using only the larger arc, or only one of the arcs, which wouldn't give the correct angle measure because it ignores the contribution of both intercepted arcs. Hence, understanding this specific relationship is essential for solving problems involving angle measures within circles.*

## 10. What are vertical angles?

A. Angles that sum to 90 degrees

B. Angles opposite each other when two lines intersect

C. Angles that are equal to 180 degrees

D. Angles formed by the intersection of parallel lines

*Vertical angles are formed when two lines intersect, creating two pairs of opposite angles. Each angle in a pair is called a vertical angle to its counterpart, and they are always equal to each other. This means that if one angle measures, for example, 30 degrees, the vertical angle opposite it will also measure 30 degrees. This property arises from the fact that when two lines intersect, the angles adjacent to each other (the non-opposite angles) are supplementary, summing together to form 180 degrees. Understanding vertical angles is fundamental in geometry, as they illustrate key concepts about angle relationships and the nature of intersecting lines. This definition clarifies that vertical angles are specifically those that sit across from each other, and is an essential concept in solving various problems concerning angles.*

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# 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://geometryregents.examzify.com

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

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