TRANSFORMATIONS IN GEOMETRY – TRANSLATIONS AND REFLECTIONS PRACTICE TEST (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 is the slope of a line perpendicular to the line y = x - 1?

A. -1

B. 1

C. Undefined

D. 0

2. Translate P(2, -5) by vector (4, 3). What is P'?

A. (2, -8)

B. (6, -2)

C. (-2, -5)

D. (4, 3)

3. After translating then reflecting, are distances between corresponding points preserved?

A. No; distances change.

B. Only for translations.

C. Yes; distances are preserved.

D. Only for reflections.

4. Apply a reflection across the line y = 0 to P(3,4), then translate by (-2,5). What is P'?

A. (1,1)

B. (3,-4)

C. (-2,9)

D. (4,0)

5. Reflect P(-5, 2) across the y-axis. What is P'?

A. (-5, -2)

B. (5, -2)

C. (5, 2)

D. (-5, 2)

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6. If a triangle is translated, what happens to its side lengths?

A. They remain the same.

B. They increase.

C. They decrease.

D. They depend on the translation distance.

7. Which translation vector corresponds to the rule (x, y) (x − 1, y + 6)?

A. (1, -6)

B. (-1, 6)

C. (1, 6)

D. (-1, -6)

8. What is the image of the point (3, -4) across the line y = x?

A. (-4, 3)

B. (3, -4)

C. (-3, -4)

D. (4, -3)

9. What is the new figure called after a transformation?

A. Pre-image

B. Image

C. Copy

D. Sketch

10. If P is (3,-5), what is its image after reflecting across the line y = x?

A. (3, -5)

B. (-3, -5)

C. (-5, 3)

D. (-5, -3)

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Answers

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

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Explanations

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1. What is the slope of a line perpendicular to the line y = x - 1?

A. -1

B. 1

C. Undefined

D. 0

Perpendicular lines have slopes that are negative reciprocals. The line given, y = x - 1, has slope 1. The negative reciprocal of 1 is -1, so a line perpendicular to it must have slope -1. You can think of it as a line that tilts the same amount but in the opposite direction, turning 90 degrees. A line with slope -1 has the form y = -x + b, which confirms the slope is -1. (For contrast, a slope of 1 would be parallel, and slopes 0 or undefined correspond to horizontal or vertical lines, whose perpendiculars are vertical or horizontal, respectively.)

2. Translate P(2, -5) by vector (4, 3). What is P'?

A. (2, -8)

B. (6, -2)

C. (-2, -5)

D. (4, 3)

Translating a point by a vector means adding the vector's components to the point's coordinates. The vector (4, 3) tells you to move 4 units to the right and 3 units up. Starting from P(2, -5), add the x components: 2 + 4 = 6. Add the y components: -5 + 3 = -2. So P' is (6, -2). This matches the idea of shifting every point the same amount in the x and y directions. The other options don't follow this addition: (2, -8) would move down by 3 only, (-2, -5) would move left by 4 only, and (4, 3) is just the translation vector itself, not the new point.

3. After translating then reflecting, are distances between corresponding points preserved?

A. No; distances change.

B. Only for translations.

C. Yes; distances are preserved.

D. Only for reflections.

Moving points around without changing how far apart they are is what translations and reflections do. Each operation is a rigid motion, meaning it preserves distances and lengths. When you translate and then reflect, the whole figure is moved and flipped as a single rigid motion, so every distance between points stays the same. In particular, the distance between any two corresponding points on the original figure and its image remains unchanged, and every segment keeps its length. So distances are preserved.

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4. Apply a reflection across the line y = 0 to P(3,4), then translate by (-2,5). What is P'?

A. (1,1)

B. (3,-4)

C. (-2,9)

D. (4,0)

Reflecting across the line y = 0 (the x-axis) keeps the x-coordinate the same and changes the y-coordinate to its opposite. So P(3, 4) becomes P_ref(3, -4). Translating by (-2, 5) means moving left 2 and up 5, giving x: 3 - 2 = 1 and y: -4 + 5 = 1. Therefore the image P' is (1, 1).

5. Reflect P(-5, 2) across the y-axis. What is P'?

A. (-5, -2)

B. (5, -2)

C. (5, 2)

D. (-5, 2)

Reflecting across the y-axis keeps the y-coordinate the same and changes the sign of the x-coordinate. So from P(-5, 2) you get P' with the same y = 2 but x flipped to positive: P' = (5, 2). This matches the option that has y unchanged and x positive. The other possibilities either change the y-value (which would be a reflection across the x-axis or another transformation) or keep the x-value negative or change both coordinates, which doesn't fit a y-axis reflection.

6. If a triangle is translated, what happens to its side lengths?

A. They remain the same.

B. They increase.

C. They decrease.

D. They depend on the translation distance.

Translations shift every point of the triangle by the same amount in the same direction, which is a rigid motion. Distances between points do not change under a rigid motion, so the lengths of the triangle's sides stay exactly the same. The triangle's position changes, but not its size or shape. Increasing or decreasing side lengths would require resizing, which a translation does not do. The translation distance only affects where the triangle ends up, not how long its sides are.

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7. Which translation vector corresponds to the rule (x, y) (x − 1, y + 6)?

A. (1, -6)

B. (-1, 6)

C. (1, 6)

D. (-1, -6)

Interpreting a translation as a shift by a vector helps you see exactly how the coordinates change. The rule (x, y) (x − 1, y + 6) means every point moves 1 unit to the left (x decreases by 1) and 6 units up (y increases by 6). So the translation vector is (-1, 6). This vector tells you the direction and distance of the shift: left 1, up 6. Other vectors would move points in different directions: (1, -6) would be right 1 and down 6; (1, 6) would be right 1 and up 6; (-1, -6) would be left 1 and down 6.

8. What is the image of the point (3, -4) across the line y = x?

A. (-4, 3)

B. (3, -4)

C. (-3, -4)

D. (4, -3)

When you reflect a point across the line y = x, you swap its coordinates. The line y = x acts like a mirror that exchanges horizontal and vertical positions. So for the point (3, -4), its image across y = x is (-4, 3). You can check this by noting the midpoint between the original point and its image lies on y = x (the midpoint is (-0.5, -0.5)), and the line segment connecting them has slope -1, which is perpendicular to y = x (slope 1). This confirms the swap of coordinates is correct.

9. What is the new figure called after a transformation?

A. Pre-image

B. Image

C. Copy

D. Sketch

In transformations, the figure that results after applying the transformation is called the image. The original figure, before transformation, is the pre-image. A translation, rotation, or reflection produces an image that is congruent to the pre-image (same size and shape), while a dilation would produce a similar figure with a different size. Terms like copy or sketch aren't the formal name for the transformed figure. So the new figure is called the image.

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10. If P is (3,-5), what is its image after reflecting across the line y = x?

A. (3, -5)

B. (-3, -5)

C. (-5, 3)

D. (-5, -3)

When reflecting across the line y = x, you swap the x- and y-coordinates of the point. This line acts like a mirror that flips horizontal and vertical positions. For P(3, -5), swapping the coordinates gives (-5, 3). This is the mirror image because the original x becomes the new y, and the original y becomes the new x. A point on the line y = x would stay the same, and points not swapped in this way wouldn't align symmetrically across the line. So the image is (-5, 3).

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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://transfgeometrytransreflections.examzify.com

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

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