TSI A2 MATHEMATICS 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. Convert 1 1/2 to an improper fraction.

A. 2/1

B. 3/2

C. 1/2

D. 4/3

2. What is the circumference of a circle with radius 4?

A. 4π

B. 6π

C. 16π

D. 8π

3. Which expression correctly represents slope?

A. Rise over Run

B. Run over Rise

C. Delta X over Delta Y

D. X over Y

4. What is the area of a circle with diameter 10?

A. 10π

B. 50π

C. 5π

D. 25π

5. What is the degree of the polynomial 3x^3 + 2x^5 + x?

A. 3

B. 5

C. 2

D. 1

6. Given x = 3 and the equation 2x + y = 5, what is y?

A. 1

B. 0

C. -1

D. 2

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7. Solve the rational equation: (1/(x-1)) + (2/(x+1)) = 3/(x^2 - 1).

A. x = 0

B. x = 2

C. x = 4/3

D. x = -4/3

8. To express 75% as a decimal, what is the result?

A. 0.75

B. 0.0075

C. 7.5

D. 75

9. Solve the quadratic equation: x^2 - 5x - 6 = 0

A. x = 6 or x = -1

B. x = -6 or x = 1

C. x = 3 or x = -2

D. x = 5 or x = -1

10. Find the hypotenuse of a right triangle with legs 7 and 24.

A. 20

B. 25

C. 21

D. 26

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Answers

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

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Explanations

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1. Convert 1 1/2 to an improper fraction.

A. 2/1

B. 3/2

C. 1/2

D. 4/3

Converting a mixed number to an improper fraction uses the idea that the whole part and the fractional part share the same denominator. Multiply the whole number by that denominator and then add the numerator of the fractional part. For 1 1/2, the denominator is 2, the whole part is 1, and the extra part is 1. So 1 × 2 = 2, and 2 + 1 = 3. Put this over the original denominator to get 3/2. This makes sense because 3/2 equals 1.5, which is the same value as 1 1/2. The other fractions don't match that value: 2/1 is 2, 1/2 is 0.5, and 4/3 is about 1.333. Therefore, 1 1/2 converts to 3/2.

2. What is the circumference of a circle with radius 4?

A. 4π

B. 6π

C. 16π

D. 8π

The distance around a circle, its circumference, is tied to the radius by the formula C = 2πr. With a radius of 4, you get C = 2π(4) = 8π. This can also be seen using the diameter: C = πd, and the diameter is 8, so C = π(8) = 8π. The other values would come from different radii (for example, a radius of 2 gives 4π, a radius of 3 gives 6π, and a radius of 8 gives 16π), but they don't match a radius of 4. So the circumference is 8π.

3. Which expression correctly represents slope?

A. Rise over Run

B. Run over Rise

C. Delta X over Delta Y

D. X over Y

The slope is the vertical change divided by the horizontal change as you move along a line. This is rise over run, since rise corresponds to Δy (vertical change) and run corresponds to Δx (horizontal change). So the slope is Δy/Δx, which is rightly described as rise over run. If you imagine moving along the line and you go up 3 units for every 2 units to the right, the slope is 3/2, illustrating rise over run. The other phrasing would either swap the numerator and denominator (giving run over rise or Δx/Δy), or just name the coordinates without expressing the change, so they don't capture how steep the line changes.

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4. What is the area of a circle with diameter 10?

A. 10π

B. 50π

C. 5π

D. 25π

The area of a circle depends on the radius, not the diameter directly. The radius is half the diameter, so here r = 10/2 = 5. Then A = πr^2 = π × 5^2 = 25π. Another way is A = (π/4) d^2, and with d = 10, A = (π/4) × 100 = 25π. The other values would require a different radius that doesn't come from a diameter of 10.

5. What is the degree of the polynomial 3x^3 + 2x^5 + x?

A. 3

B. 5

C. 2

D. 1

The degree of a polynomial is the highest power of x that appears with a nonzero coefficient. In 3x^3 + 2x^5 + x, the exponents are 3, 5, and 1. The largest is 5, and the coefficient of x^5 is 2 (nonzero), so the degree is 5. The other terms have lower powers and do not affect the degree.

6. Given x = 3 and the equation 2x + y = 5, what is y?

A. 1

B. 0

C. -1

D. 2

Solving for a variable by substituting the given value into a linear equation. Replace x with 3 in 2x + y = 5: 2(3) + y = 5, which becomes 6 + y = 5. Subtract 6 from both sides to isolate y, giving y = -1. Check by plugging back in: 2x + y = 6 + (-1) = 5, which matches. So y equals -1.

7. Solve the rational equation: (1/(x-1)) + (2/(x+1)) = 3/(x^2 - 1).

A. x = 0

B. x = 2

C. x = 4/3

D. x = -4/3

When solving a rational equation, look for a common denominator and combine the fractions. The denominator on the right is x^2 − 1, which factors to (x − 1)(x + 1). Rewrite the left side over this same denominator: (x+1)/(x−1)(x+1) + 2(x−1)/(x+1)(x−1) gives (3x − 1)/[(x−1)(x+1)]. Now the equation is (3x − 1)/[(x−1)(x+1)] = 3/[(x−1)(x+1)]. As long as x is not 1 or −1, you can multiply both sides by the common denominator to cancel it, yielding 3x − 1 = 3. This gives x = 4/3. Since this value does not make any denominator zero, it's valid. Therefore, x = 4/3.

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8. To express 75% as a decimal, what is the result?

A. 0.75

B. 0.0075

C. 7.5

D. 75

Converting a percentage to a decimal means dividing by 100, or moving the decimal point two places to the left. Since 75% is 75 per 100, it becomes 75 ÷ 100 = 0.75. You can check by multiplying back: 0.75 × 100 = 75. The other numbers reflect common mistakes with decimal placement: 0.0075 would be 0.75%, 7.5 would be 750%, and 75 would be 7500% as a decimal. So the decimal form is 0.75.

9. Solve the quadratic equation: x^2 - 5x - 6 = 0

A. x = 6 or x = -1

B. x = -6 or x = 1

C. x = 3 or x = -2

D. x = 5 or x = -1

To solve by factoring, look for two numbers that multiply to the constant term (-6) and add to the coefficient of x (-5). Those numbers are -6 and 1, since (-6) × 1 = -6 and (-6) + 1 = -5. So the quadratic factors as (x − 6)(x + 1) = 0. By the zero-product property, either x − 6 = 0 or x + 1 = 0, giving x = 6 or x = -1. You can verify quickly by substitution: 6^2 − 5·6 − 6 = 0 and (−1)^2 − 5(−1) − 6 = 0. The solutions are 6 and -1.

10. Find the hypotenuse of a right triangle with legs 7 and 24.

A. 20

B. 25

C. 21

D. 26

In a right triangle, the square of the hypotenuse equals the sum of the squares of the legs. So with legs 7 and 24, you compute c^2 = 7^2 + 24^2 = 49 + 576 = 625. The hypotenuse is c = sqrt(625) = 25. So the hypotenuse is 25. This is also the 7-24-25 Pythagorean triple, which explains why 25 fits exactly. The other numbers wouldn't satisfy c^2 = 7^2 + 24^2, so they aren't the hypotenuse.

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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://tsia2math.examzify.com

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

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