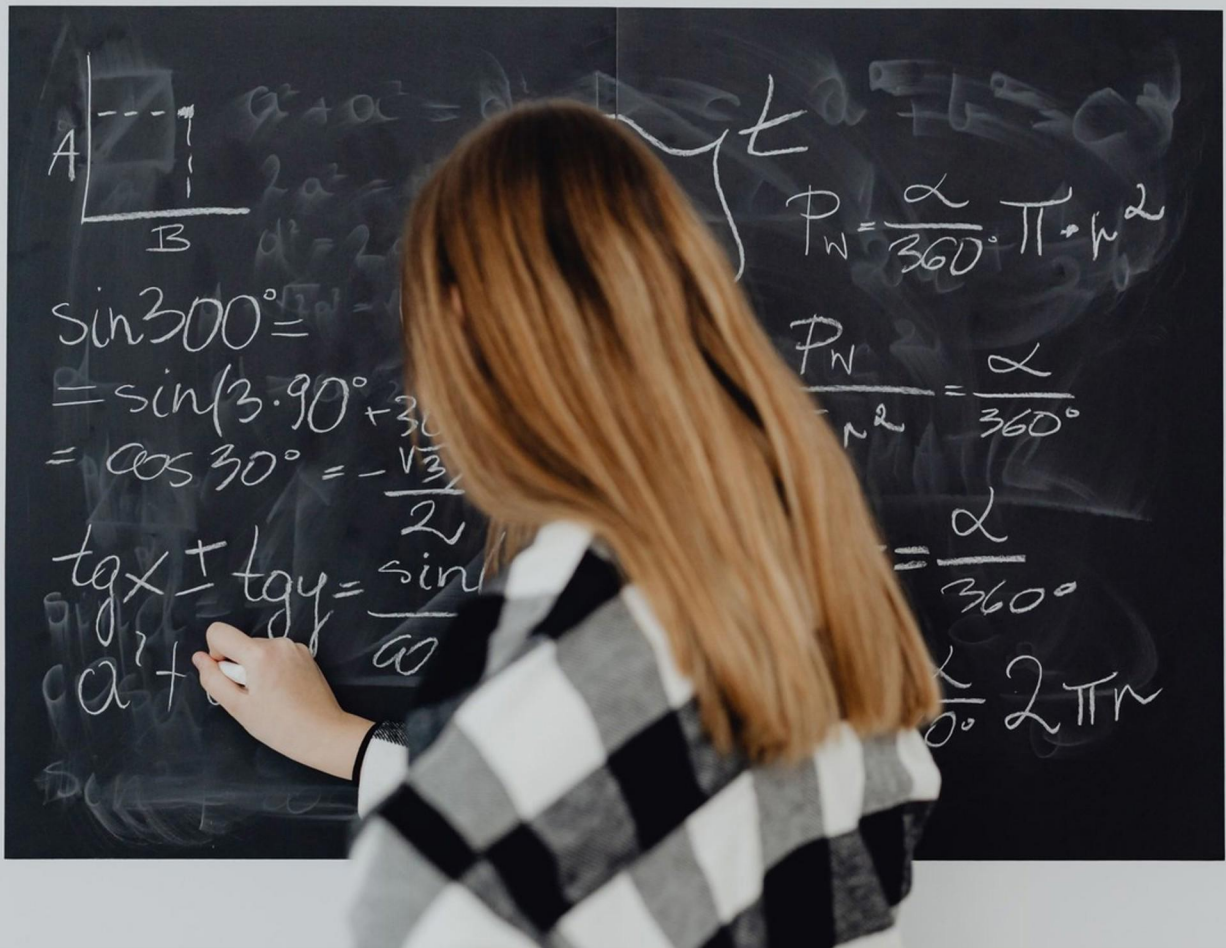


ALGEBRA PRACTICE TEST (SAMPLE)

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. If $\sin(\theta) = 1/2$, what values can θ take in degrees?
- A. 30° and 150°
 - B. 45° and 135°
 - C. 0° and 180°
 - D. 60° and 120°
2. What are the roots of the polynomial $x^2 - x - 6$?
- A. $x = 3$ or $x = -2$
 - B. $x = 2$ or $x = -3$
 - C. $x = 1$ or $x = -6$
 - D. $x = 4$ or $x = -1$
3. What is the value of x in the system of equations $3x - 3y = 3$ and $x - 5y = -3$?
- A. 1
 - B. 2
 - C. 3
 - D. 0
4. What is the result of evaluating $x + y$ for $x = -8$ and $y = -15$?
- A. -7
 - B. -23
 - C. -8
 - D. 7
5. What is the product of the prime factors of 2310?
- A. $2 \cdot 3 \cdot 5 \cdot 7 \cdot 11$
 - B. $3 \cdot 5 \cdot 11$
 - C. $2 \cdot 2 \cdot 5 \cdot 7 \cdot 11$
 - D. $2 \cdot 3 \cdot 3 \cdot 5 \cdot 7$
6. What is the simplified form of $4x + 3x - x$?
- A. $6x$
 - B. $8x$
 - C. $3x$
 - D. $5x$

7. What is the slope-intercept form of the line with a slope of 1 and y-intercept of -1?
- A. $y = x + 1$
 - B. $y = x - 1$
 - C. $y = -x + 1$
 - D. $y = -x - 1$
8. When factoring the expression $2x^2 - 10x + 12$, what is the first step?
- A. Identify common factors
 - B. Use the quadratic formula
 - C. Check if it can be simplified to a monomial
 - D. Rearrange the equation
9. What is the value of the expression $2^2 + 3 \times 5$?
- A. 15
 - B. 19
 - C. 17
 - D. 12
10. If $f(x) = 2x + 3$, what is $f(2)$?
- A. 4
 - B. 7
 - C. 8
 - D. 5

Answers

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

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Explanations

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1. If $\sin(\theta) = 1/2$, what values can θ take in degrees?

A. 30° and 150°

B. 45° and 135°

C. 0° and 180°

D. 60° and 120°

The sine function has specific values associated with angles in a unit circle. When $\sin(\theta) = 1/2$, we can determine the corresponding angles in the first and second quadrants. In the first quadrant, the reference angle that results in a sine value of $1/2$ is 30° . This is a well-known sine value from both the unit circle and the special triangles. Moving to the second quadrant, sine is positive, and the angles are found by subtracting the reference angle from 180° . Thus, the other angle that has the sine value of $1/2$ is found by calculating $180^\circ - 30^\circ$, which results in 150° . Therefore, the solutions for $\sin(\theta) = 1/2$ in degrees are 30° and 150° , making this the correct answer.

2. What are the roots of the polynomial $x^2 - x - 6$?

A. $x = 3$ or $x = -2$

B. $x = 2$ or $x = -3$

C. $x = 1$ or $x = -6$

D. $x = 4$ or $x = -1$

To find the roots of the polynomial $x^2 - x - 6$, we can factor it. We are looking for two numbers that multiply to -6 (the constant term) and add to -1 (the coefficient of the linear term). The numbers 3 and -2 satisfy these conditions, as $3 * (-2) = -6$ and $3 + (-2) = 1$. Therefore, we can express the polynomial as $(x - 3)(x + 2)$. Setting each factor equal to zero gives us the two roots: 1. $x - 3 = 0$ $x = 3$ 2. $x + 2 = 0$ $x = -2$ This means the roots of the polynomial $x^2 - x - 6$ are indeed $x = 3$ and $x = -2$. Thus, this choice accurately represents the solution to the equation. These roots indicate the values of x where the polynomial equals zero, confirming that the answer is valid.

3. What is the value of x in the system of equations $3x - 3y = 3$ and $x - 5y = -3$?

A. 1

B. 2

C. 3

D. 0

To find the value of x in the given system of equations, we first need to solve the equations simultaneously. The first equation is $(3x - 3y = 3)$. This can be simplified by dividing the entire equation by 3: $(x - y = 1)$ (Equation 1). Next, we take the second equation, $(x - 5y = -3)$ (Equation 2). Now, we can express (x) from Equation 1: $(x = y + 1)$. We can substitute this expression for (x) into Equation 2: $((y + 1) - 5y = -3)$. Combining like terms gives: $(y + 1 - 5y = -3)$. This simplifies to: $(-4y + 1 = -3)$. Subtracting 1 from both sides results in: $(-4y = -4)$. Dividing both sides by -4 provides us with the value of (y) : $(y = 1)$. Now that we have the value of (y)

4. What is the result of evaluating $x + y$ for $x = -8$ and $y = -15$?

- A. -7
- B. -23**
- C. -8
- D. 7

To find the result of evaluating the expression $x + y$ with the values $x = -8$ and $y = -15$, you simply add the two values together. First, take the value of x , which is -8 . Then, add the value of y , which is -15 , to it: $-8 + (-15)$. When you add two negative numbers, you combine their absolute values and keep the negative sign. The absolute values of -8 and -15 are 8 and 15 , respectively. Calculating the sum of the absolute values: $8 + 15 = 23$. Since both numbers are negative, the result is -23 . Therefore, the evaluation of $x + y$ when $x = -8$ and $y = -15$ gives you -23 , confirming that the result is accurate.

5. What is the product of the prime factors of 2310?

- A. $2 \cdot 3 \cdot 5 \cdot 7 \cdot 11$**
- B. $3 \cdot 5 \cdot 11$
- C. $2 \cdot 2 \cdot 5 \cdot 7 \cdot 11$
- D. $2 \cdot 3 \cdot 3 \cdot 5 \cdot 7$

To determine the product of the prime factors of 2310, first, we need to identify its prime factorization. The prime factors of 2310 can be found through a step-by-step division: 1. Start dividing by the smallest prime number, which is 2. Since 2310 is even, it can be divided by 2: $(2310 \div 2 = 1155)$ 2. Next, we look at 1155. The sum of its digits ($1 + 1 + 5 + 5 = 12$) is divisible by 3, so we divide by 3: $(1155 \div 3 = 385)$ 3. Now, 385 is not even, and adding its digits ($3 + 8 + 5 = 16$) shows it's not divisible by 3. Next, we try 5 (as it ends in 5): $(385 \div 5 = 77)$ 4. Finally, for 77, we can see that it divides by 7: $(77 \div 7 = 11)$ This gives us the complete factorization: $(2310$

6. What is the simplified form of $4x + 3x - x$?

- A. $6x$
- B. $8x$
- C. $3x$
- D. $5x$**

To simplify the expression $4x + 3x - x$, we start by combining the like terms. The terms $4x$ and $3x$ can be added together because they both involve the variable x . Calculating that, we have: $4x + 3x = 7x$. Next, we need to subtract x from this sum: $7x - x = 6x$. This gives us the final simplified form of the expression, which is $6x$. When considering the other possibilities, they do not reflect the correct arithmetic operation based on the terms provided in the original expression. Therefore, the accurate simplified form is indeed $6x$, confirming that it is the result of properly combining the like terms.

7. What is the slope-intercept form of the line with a slope of 1 and y-intercept of -1?

- A. $y = x + 1$
- B. $y = x - 1$**
- C. $y = -x + 1$
- D. $y = -x - 1$

To find the slope-intercept form of a line, we use the formula $(y = mx + b)$, where (m) represents the slope and (b) is the y-intercept. In this case, the slope is 1 and the y-intercept is -1. Substituting the given values into the slope-intercept formula, we have: $(y = 1x - 1)$ This can be simplified to: $(y = x - 1)$ This equation clearly reflects a line that rises at a 45-degree angle (since the slope is 1) and crosses the y-axis at -1. Each unit you move to the right on the x-axis, the line moves up one unit on the y-axis, aligning with a slope of 1. Thus, the correct representation of the line with these specific characteristics is indeed $(y = x - 1)$.

8. When factoring the expression $2x^2 - 10x + 12$, what is the first step?

- A. Identify common factors**
- B. Use the quadratic formula
- C. Check if it can be simplified to a monomial
- D. Rearrange the equation

The first step in factoring the expression $2x^2 - 10x + 12$ is to identify common factors. This is crucial because it allows us to simplify the expression before seeking further factors. In this case, all the terms in the expression share a common factor of 2. By factoring out this common factor, we can rewrite the expression as $2(x^2 - 5x + 6)$. This simplification makes it easier to identify the roots or to factor the quadratic further. Identifying common factors is a foundational step in factoring polynomials, as it reduces the complexity of the expression we are working with. Once we've simplified it by removing the common factor, we can then factor the quadratic within the parentheses further, which may involve finding two numbers that multiply to the constant term and add up to the coefficient of the linear term. In contrast, using the quadratic formula would be a later step if factoring directly does not yield easily recognizable factors. Checking if it can be simplified to a monomial is not applicable here since the expression is a polynomial with multiple terms. Rearranging the equation isn't necessary at this stage, as we aim to factor the expression directly to find the roots or intercepts. Thus, recognizing and extracting

9. What is the value of the expression $2^2 + 3 \times 5$?

- A. 15
- B. 19**
- C. 17
- D. 12

To find the value of the expression $(2^2 + 3 \times 5)$, start by performing the operations according to the order of operations, often remembered by the acronym PEMDAS (Parentheses, Exponents, Multiplication and Division (from left to right), Addition and Subtraction (from left to right)). First, calculate (2^2) , which is the exponentiation part of the expression. $(2^2 = 4)$ Next, move on to the multiplication part of the expression, which is (3×5) . $(3 \times 5 = 15)$ Now, combine the results from both operations. You will add the result of (2^2) to that of (3×5) : $(4 + 15 = 19)$ Thus, the final value of the expression $(2^2 + 3 \times 5)$ is 19. This confirms that 19 is indeed the correct answer as it directly results from accurately applying the order of operations to evaluate the expression.

10. If $f(x) = 2x + 3$, what is $f(2)$?

A. 4

B. 7

C. 8

D. 5

To find $f(2)$ when the function is defined as $f(x) = 2x + 3$, we need to substitute x with 2 in the equation. Starting with the function: $f(x) = 2x + 3$ Now substitute 2 for x : $f(2) = 2(2) + 3$ Calculating the expression: $= 4 + 3 = 7$ Thus, $f(2)$ equals 7. The correct answer reflects the proper substitution into the function and calculation of the resulting expression, leading to the value of $f(2)$ being 7.

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://algebra.examzify.com>

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

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