

ACCUPLACER ADVANCED ALGEBRA AND FUNCTIONS PRACTICE EXAM (SAMPLE) STUDY GUIDE



Prepare with structure. Pass with confidence



Copyright © 2026 by Examzify - A Kaluba Technologies Inc. product.

ALL RIGHTS RESERVED.

No part of this book may be reproduced or transferred in any form or by any means, graphic, electronic, or mechanical, including photocopying, recording, web distribution, taping, or by any information storage retrieval system, without the written permission of the author.

Notice: Examzify makes every reasonable effort to obtain accurate, complete, and timely information about this product from reliable sources.

SAMPLE

Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	15

SAMPLE

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

SAMPLE

1. Which expression represents the quadratic equation in standard form?
- A. $x^2 + 5 = 0$
 - B. $2x^2 + 3x + 1 = 0$
 - C. $3x - 2 = 0$
 - D. $x^2 - 4 = 0$
2. What are the signs of Sin, Cos, and Tan in Quadrant IV?
- A. Sin = +, Cos = +, Tan = -
 - B. Sin = +, Cos = -, Tan = +
 - C. Sin = -, Cos = +, Tan = +
 - D. Sin = -, Cos = -, Tan = -
3. Which degrees define Quadrant II in the unit circle?
- A. 120, 135, 150, 180
 - B. 210, 225, 240, 270
 - C. 300, 315, 330, 360
 - D. 0, 30, 45, 60
4. How is exponential population growth expressed mathematically?
- A. $P = A(1-r)^t$
 - B. $P = A(1+r)^t$
 - C. $P = A(b)^t$
 - D. $P = A(1+b)^t$
5. Calculate the value of $(2 \times (3 + 4x) - 5)$ when $(x = 2)$.
- A. 15
 - B. 17
 - C. 19
 - D. 20
6. Find the common difference in the arithmetic sequence: 2, 5, 8, 11.
- A. 1
 - B. 2
 - C. 3
 - D. 4

7. What is the product of the roots of the quadratic equation $(x^2 - 8x + 15 = 0)$?
- A. 8
 - B. 7
 - C. 15
 - D. 10
8. What is the product of the roots of the polynomial $(x^2 - 5x + 6)$?
- A. 5
 - B. 6
 - C. 7
 - D. 8
9. If a quadratic equation is in the form $(ax^2 + bx + c)$, what is the axis of symmetry?
- A. $x = -b/2a$
 - B. $x = b/2a$
 - C. $x = 2a/b$
 - D. $x = -2a/b$
10. What expression represents the sum of the roots of the polynomial $(x^2 - 8x + 15)$?
- A. 7
 - B. 8
 - C. 9
 - D. 10

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. Which expression represents the quadratic equation in standard form?

- A. $x^2 + 5 = 0$
- B. $2x^2 + 3x + 1 = 0$**
- C. $3x - 2 = 0$
- D. $x^2 - 4 = 0$

To determine which expression represents a quadratic equation in standard form, it's essential to understand what standard form for a quadratic equation is. A quadratic equation is typically expressed as $ax^2 + bx + c = 0$, where a , b , and c are constants, and a must be non-zero. The expression that correctly fits this definition is $2x^2 + 3x + 1 = 0$. In this expression: - The term $2x^2$ represents the quadratic term, where $a = 2$. - The term $3x$ represents the linear term, where $b = 3$. - The constant term 1 represents c . Thus, it clearly conforms to the required structure of a quadratic equation in standard form. In contrast, the other expressions do not fit the standard form of a quadratic equation. For instance, the expression $x^2 + 5 = 0$ is a quadratic equation but lacks a linear term. The expression $3x - 2 = 0$ is linear, not quadratic, and therefore does not contain an x^2 term.

2. What are the signs of Sin, Cos, and Tan in Quadrant IV?

- A. Sin = -, Cos = +, Tan = -**
- B. Sin = +, Cos = -, Tan = +
- C. Sin = -, Cos = +, Tan = +
- D. Sin = -, Cos = -, Tan = -

In Quadrant IV, the signs of the trigonometric functions are determined by the position of the angle relative to the unit circle. The angles in this quadrant range from 270° to 360° (or from $3\pi/2$ to 2π radians). In this quadrant, the sine function corresponds to the y-coordinate of a point on the unit circle. Since the y-coordinates are negative in Quadrant IV, the sine of any angle in this quadrant will be negative. The cosine function corresponds to the x-coordinate. The x-coordinates are positive in Quadrant IV, resulting in a positive value for the cosine function. Tangent, which is the ratio of sine to cosine ($\tan = \sin/\cos$), inherits the signs of those functions. Since sine is negative and cosine is positive in this quadrant, tangent will also be negative. Thus, in Quadrant IV: - Sine is negative, - Cosine is positive, - Tangent is negative. This corresponds to the choice that indicates sine is negative, cosine is positive, and tangent is negative. Understanding these relationships helps clarify the behavior of trigonometric functions in different quadrants, reinforcing the concept of the unit circle and the coordinate system.

3. Which degrees define Quadrant II in the unit circle?

- A. 120, 135, 150, 180**
- B. 210, 225, 240, 270
- C. 300, 315, 330, 360
- D. 0, 30, 45, 60

Quadrant II in the unit circle is defined by angles that range from 90 degrees to 180 degrees. The angles in this quadrant have their sine values positive and cosine values negative. The correct answer provides the angles 120, 135, 150, and 180 degrees, all of which fall within that range: - 120 degrees is in Quadrant II, as it is between 90 and 180 degrees. - 135 degrees is also in Quadrant II and is exactly halfway between 90 and 180. - 150 degrees is still within Quadrant II, being closer to 180. - 180 degrees marks the boundary of Quadrant II but is still included in the definition as it indicates the edge of that quadrant. In conclusion, these angles identify Quadrant II correctly, ensuring a solid understanding of their positions in relation to the entire unit circle.

4. How is exponential population growth expressed mathematically?

- A. $P = A(1-r)^t$
- B. $P = A(1+r)^t$**
- C. $P = A(b)^t$
- D. $P = A(1+b)^t$

Exponential population growth is typically expressed in the form of a mathematical model where the quantity grows at a rate proportional to its current value. The most common form of this expression is: $P = A(b)^t$. In this equation, P represents the population at time t , A is the initial population size, b is the growth factor, and t is the time elapsed. The growth factor b is usually greater than 1 for exponential growth, indicating that the population is increasing. Option B, $P = A(1+r)^t$, actually represents situations where a population grows by a fixed percentage rate r over time. This is often used in contexts of compound interest, but it is not the classic formulation for pure exponential growth in terms of a base b . The choice $P = A(b)^t$ emphasizes continuous growth, while $1+r$ is more indicative of growth that occurs at discrete intervals. Hence, $P = A(b)^t$ is the correct representation of exponential population growth, as it indicates that the population increases repeatedly by multiplying with a factor b over time, leading to a rapid increase characteristic of exponential growth.

5. Calculate the value of $\sqrt{2 \times (3 + 4x) - 5}$ when $x = 2$.

- A. 15
- B. 17**
- C. 19
- D. 20

To find the value of $\sqrt{2 \times (3 + 4x) - 5}$ when $x = 2$, start by substituting x with 2 in the equation. This gives you: $\sqrt{2 \times (3 + 4 \times 2) - 5}$. Next, calculate 4×2 which equals 8. Substitute this value back into the equation: $\sqrt{2 \times (3 + 8) - 5}$. Now, simplify the expression inside the parentheses: $3 + 8 = 11$. This leads to: $\sqrt{2 \times 11 - 5}$. Multiply 2 by 11: $22 - 5$. Finally, subtract 5 from 22: $22 - 5 = 17$. Thus, the value of $\sqrt{2 \times (3 + 4x) - 5}$ when $x = 2$ is 17, confirming the correctness of the provided solution.

6. Find the common difference in the arithmetic sequence: 2, 5, 8, 11.

- A. 1
- B. 2
- C. 3**
- D. 4

In an arithmetic sequence, the common difference is found by subtracting any term from the subsequent term. In the given sequence, the difference between the first two terms can be calculated as follows: Subtracting the first term (2) from the second term (5) gives us $5 - 2 = 3$. Next, if we check the difference between the second term (5) and the third term (8), we get $8 - 5 = 3$. Finally, looking at the difference between the third term (8) and the fourth term (11) also results in $11 - 8 = 3$. Since the difference remains constant at 3 throughout the sequence, this confirms that the common difference is indeed 3. Understanding this concept is crucial when working with arithmetic sequences, as identifying the common difference allows for the prediction of future terms and understanding the structure of the sequence.

7. What is the product of the roots of the quadratic equation $(x^2 - 8x + 15 = 0)$?

A. 8

B. 7

C. 15

D. 10

To determine the product of the roots of the quadratic equation given by $(x^2 - 8x + 15 = 0)$, we can apply Vieta's formulas. Vieta's formulas relate the coefficients of a polynomial to sums and products of its roots. For a quadratic equation in the standard form $(ax^2 + bx + c = 0)$: - The sum of the roots is given by $(-\frac{b}{a})$. - The product of the roots is given by $(\frac{c}{a})$. In this case, the coefficients are: - $(a = 1)$ - $(b = -8)$ - $(c = 15)$ The product of the roots can be calculated using $(\frac{c}{a})$: $[\text{Product of the roots}] = \frac{c}{a} = \frac{15}{1} = 15$ Thus, the product of the roots of the equation $(x^2 - 8x + 15 = 0)$ is indeed 15, which confirms that the correct answer is accurate. Understanding how to apply Vieta's formulas provides a strong foundation for working with

8. What is the product of the roots of the polynomial $(x^2 - 5x + 6)$?

A. 5

B. 6

C. 7

D. 8

To determine the product of the roots of the polynomial $(x^2 - 5x + 6)$, we can use Vieta's formulas. According to Vieta's, for a quadratic equation of the form $(ax^2 + bx + c = 0)$, the sum of the roots is given by $(-\frac{b}{a})$ and the product of the roots is given by $(\frac{c}{a})$. In the polynomial $(x^2 - 5x + 6)$: - The coefficient (a) (the coefficient in front of (x^2)) is 1. - The coefficient (b) (the coefficient in front of (x)) is -5. - The constant term (c) is 6. To find the product of the roots, we apply the formula: $[\text{Product of the roots}] = \frac{c}{a} = \frac{6}{1} = 6$. Thus, the product of the roots is 6, confirming that the correct answer is indeed 6. This reflects the fundamental relationship in quadratic equations that relates coefficients to the properties of their roots

9. If a quadratic equation is in the form $(ax^2 + bx + c)$, what is the axis of symmetry?

A. $x = -b/2a$

B. $x = b/2a$

C. $x = 2a/b$

D. $x = -2a/b$

The axis of symmetry for a quadratic equation in the standard form $(ax^2 + bx + c)$ is derived from the formula that shows where the parabola will be symmetrical about a vertical line. This line, called the axis of symmetry, passes through the vertex of the parabola, which is its highest or lowest point depending on the orientation (opening upwards or downwards). The formula for the axis of symmetry is given by $(x = -\frac{b}{2a})$. This formula is obtained by finding the vertex of the parabola, which can be calculated by using the values of coefficients (a) and (b) in the quadratic equation. The negative sign in front of (b) indicates the direction necessary to find the vertical line that divides the parabola into two equal halves. This specific formula tells us that as (a) and (b) change, the position of the axis of symmetry will adjust accordingly, ensuring the vertex remains at the center of the quadratic function's graph. Thus, the correct choice reflects this mathematical relationship crucial for graphing parabolas effectively.

10. What expression represents the sum of the roots of the polynomial $x^2 - 8x + 15$?

A. 7

B. 8

C. 9

D. 10

To find the sum of the roots of the polynomial $x^2 - 8x + 15$, we can use Vieta's formulas, which relate the coefficients of a polynomial to sums and products of its roots. For a quadratic polynomial of the form $ax^2 + bx + c$, the sum of the roots is given by $-\frac{b}{a}$. In the polynomial $x^2 - 8x + 15$: - The coefficient a (for x^2) is 1, - The coefficient b (for x) is -8. Using Vieta's formula, the sum of the roots can be calculated as follows: $\text{Sum of roots} = -\frac{b}{a} = -\frac{-8}{1} = 8$. Thus, the expression that represents the sum of the roots of the polynomial is 8, making it the correct answer. Understanding this concept is fundamental to working with polynomial equations and helps in deriving various properties of the roots quickly.

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://accuplaceradvalgebra.examzify.com>

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

SAMPLE