

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



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

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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. What is the slope-intercept form of a linear equation?

- A. $y = mx + b$
- B. $y = ax^2 + bx + c$
- C. $y - b = m(x - a)$
- D. $y = mx$

2. What is the representation of a composite function?

- A. $f(g(x))$
- B. $f * g(x)$
- C. $f/g(x)$
- D. $g(f(x))$

3. What is the x-intercept of the equation $x + 2y = 6$?

- A. 3
- B. -2
- C. 6
- D. 0

4. What does the discriminant formula calculate in a quadratic equation?

- A. The number of solutions
- B. The midpoint of the graph
- C. The vertex of the parabola
- D. The x-intercepts only

5. What is the formula for the circumference of a semicircle?

- A. $C = \pi r$
- B. $C = 2\pi r$
- C. $C = \pi d$
- D. $C = 2r$

6. What is the solution to the equation $5x + 2 = 3x + 10$?

- A. 2
- B. 4
- C. 6
- D. 8

7. How are the signs of Sin, Cos, and Tan represented in Quadrant III?

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

8. What is the y-intercept of the line defined by $y = -2x + 5$?

- A. 2
- B. 5
- C. -2
- D. -5

9. According to the Law of Cosines, which formula represents Cos A?

- A. $a^2 = b^2 + c^2 - 2bc \cos A$
- B. $\cos A = (b^2 + c^2 - a^2) / (2bc)$
- C. $a^2 = b^2 - c^2 + 2bc \cos A$
- D. $\cos A = (a^2 - b^2 - c^2) / (2bc)$

10. What is the value of $f(2)$ if $f(x) = 3x^2 - 4x + 5$?

- A. 10
- B. 15
- C. 22
- D. 30

Answers

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

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Explanations

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1. What is the slope-intercept form of a linear equation?

- A. $y = mx + b$
- B. $y = ax^2 + bx + c$
- C. $y - b = m(x - a)$
- D. $y = mx$

The slope-intercept form of a linear equation is expressed as $y = mx + b$, where m represents the slope of the line and b denotes the y -intercept, which is the point where the line crosses the y -axis. This format is particularly useful because it directly shows how the dependent variable (y) changes in relation to the independent variable (x), reflecting the linear relationship. In this equation: - The coefficient m provides information about the steepness and direction of the line. If m is positive, the line rises as it moves from left to right; if m is negative, the line falls. - The constant b indicates the value of y when $x = 0$, giving insight into the vertical position of the line on the graph. Understanding this format allows for quick graphical interpretation and the ability to identify critical features of the line, such as its slope and intercepts. Other possible forms provided in the choices do not represent the slope-intercept format. For instance, the quadratic form $y = ax^2 + bx + c$ describes a parabolic equation rather than a linear relationship. The point-s

2. What is the representation of a composite function?

- A. $f(g(x))$
- B. $f * g(x)$
- C. $f/g(x)$
- D. $g(f(x))$

In mathematics, a composite function is formed by combining two functions in such a way that the output of one function becomes the input of another. When we denote this operation with two functions f and g , the composite function is written as $f(g(x))$, which means we take the function g , apply it to x , and then take the result and apply the function f to that result. This structure relies on the order of operations: you first evaluate g at x , and then pass that output to f . The expression $f(g(x))$ clearly captures this sequential action and underscores how the two functions interact with each other through their inputs and outputs. In contrast, the other choices do not represent the concept of a composite function. The notation $f * g(x)$ suggests multiplication of the function f and the output of g at x , while $f/g(x)$ implies division. Both of these symbols indicate arithmetic operations rather than the relationship involved in composition. Finally, the representation $g(f(x))$ signifies the opposite composition, where f is applied first, followed by g , and does not reflect the original intent of forming the composite function as described. Thus, $f(g(x))$ is the correct representation of a composite function, embodying the essence of how functions can be

3. What is the x -intercept of the equation $x + 2y = 6$?

- A. 3
- B. -2
- C. 6
- D. 0

To find the x -intercept of the equation $x + 2y = 6$, you need to set y to 0. The x -intercept is the point where the graph of the equation crosses the x -axis, which occurs when the value of y is zero. Starting with the original equation: $x + 2(0) = 6$ This simplifies to: $x = 6$ Thus, the x -intercept is at the point where $x = 6$ and $y = 0$, indicating that the correct answer is 6, which means the graph intersects the x -axis at this point. Knowing how to find the x -intercept is helpful for graphing linear equations and understanding their behavior in the coordinate plane.

4. What does the discriminant formula calculate in a quadratic equation?

- A. The number of solutions
- B. The midpoint of the graph
- C. The vertex of the parabola
- D. The x-intercepts only

The discriminant formula, given by the expression $(b^2 - 4ac)$ in the context of the quadratic equation $(ax^2 + bx + c = 0)$, is key in determining the nature and number of solutions (or roots) that the equation can have. When the discriminant is positive, it indicates that there are two distinct real solutions. If the discriminant equals zero, there is exactly one real solution, which means the parabola touches the x-axis at a single point (known as a repeated or double root). Lastly, if the discriminant is negative, the quadratic equation has no real solutions; instead, it has two complex solutions. Thus, the discriminant provides crucial information about the solutions of the quadratic equation, specifically how many there are and what type they are, making it essential for analyzing the roots of the quadratic function.

5. What is the formula for the circumference of a semicircle?

- A. $C = \pi r$
- B. $C = 2\pi r$
- C. $C = \pi d$
- D. $C = 2r$

To determine the circumference of a semicircle, we start by understanding the full circumference formula for a circle, which is given by $(C = 2\pi r)$, where (r) is the radius of the circle. A semicircle is half of a circle, so we take half of the full circumference. This leads us to: $(\text{Circumference of semicircle} = \frac{1}{2} \times 2\pi r = \pi r)$ However, we must also include the straight edge of the semicircle, which adds an additional length equal to the diameter of the semicircle. The diameter (d) is twice the radius $(d = 2r)$. So we add this straight length to our previous calculation: $(\text{Circumference of semicircle} = \pi r + 2r)$ This shows that the total length around the semicircle (the curved part plus the straight part) is represented as: $(C = \pi r + 2r)$ Thus, while the curved part is accurately described by $(C = \pi r)$, the complete circumference of a semicircle includes both segments. However, if the question

6. What is the solution to the equation $5x + 2 = 3x + 10$?

- A. 2
- B. 4
- C. 6
- D. 8

To solve the equation $(5x + 2 = 3x + 10)$, we need to isolate (x) . Start by moving all terms involving (x) to one side of the equation. You can do this by subtracting $(3x)$ from both sides: $(5x - 3x + 2 = 10)$ This simplifies to: $(2x + 2 = 10)$ Next, isolate the term with (x) by subtracting (2) from both sides: $(2x = 10 - 2)$ $(2x = 8)$ Now, divide both sides by (2) to solve for (x) : $(x = \frac{8}{2} = 4)$ Thus, the solution to the equation $(5x + 2 = 3x + 10)$ is $(x = 4)$. This means the answer is indeed accurate and demonstrates that proper algebraic manipulation led to the correct solution. When checking against the original equation, substituting back $(x = 4)$ into both sides would also yield equality, reaffirm

7. How are the signs of Sin, Cos, and Tan represented in Quadrant III?

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

In Quadrant III of the Cartesian coordinate system, both the x-coordinates and y-coordinates of points are negative. When evaluating the sine, cosine, and tangent functions in this quadrant, we can determine their signs based on the definitions of these trigonometric functions. 1. The sine function, which measures the ratio of the opposite side to the hypotenuse in a right triangle, is associated with the y-coordinate. Since the y-coordinate is negative in Quadrant III, the sine of any angle in this quadrant will also be negative. 2. The cosine function measures the ratio of the adjacent side to the hypotenuse. In Quadrant III, the x-coordinate is negative, which means the cosine of any angle in this quadrant will be negative as well. 3. The tangent function is the ratio of the sine to the cosine ($\tan = \sin/\cos$). With both sine and cosine being negative in Quadrant III, their ratio (tangent) will be positive, as a negative divided by a negative results in a positive. Thus, for Quadrant III, the correct representation is that sine is negative, cosine is negative, and tangent is positive. This aligns perfectly with the information given in the correct choice.

8. What is the y-intercept of the line defined by $y = -2x + 5$?

- A. 2
- B. 5**
- C. -2
- D. -5

To determine the y-intercept of the line defined by the equation $y = -2x + 5$, we need to understand that the y-intercept is the point where the line crosses the y-axis. This occurs when the value of x is equal to 0. To find the y-intercept, we substitute $x = 0$ into the equation: $y = -2(0) + 5 = 0 + 5 = 5$. This calculation shows that when x is 0, y equals 5. Therefore, the y-intercept is $(0, 5)$, which corresponds to the point $(0, 5)$ on the graph. Consequently, the correct answer of 5 indicates that this is the value of y at the point where the line intersects the y-axis.

9. According to the Law of Cosines, which formula represents Cos A?

- A. $a^2 = b^2 + c^2 - 2bc \cos A$**
- B. $\cos A = (b^2 + c^2 - a^2) / (2bc)$
- C. $a^2 = b^2 - c^2 + 2bc \cos A$
- D. $\cos A = (a^2 - b^2 - c^2) / (2bc)$

The Law of Cosines is a fundamental theorem in triangle geometry that relates the lengths of the sides of a triangle to the cosine of one of its angles. The formula states that for a triangle with sides a , b , and c opposite to angles A , B , and C respectively, the following relationship holds: $a^2 = b^2 + c^2 - 2bc \cos A$. This equation allows you to find the length of one side of a triangle when you know the lengths of the other two sides and the angle between them, or to find the cosine of an angle when you know the lengths of all three sides. To isolate $\cos A$, we can rearrange the Law of Cosines formula: 1. Start with the Law of Cosines: $a^2 = b^2 + c^2 - 2bc \cos A$. 2. Rearranging gives: $2bc \cos A = b^2 + c^2 - a^2$. 3. Dividing both sides by $(2bc)$ results

10. What is the value of $f(2)$ if $f(x) = 3x^2 - 4x + 5$?

A. 10

B. 15

C. 22

D. 30

To find the value of $f(2)$ for the function defined by $f(x) = 3x^2 - 4x + 5$, we need to substitute 2 for the variable x in the function. Start by substituting: $f(2) = 3(2)^2 - 4(2) + 5$ Calculating (2^2) gives 4, and then multiplying by 3: $3(4) = 12$ Next, calculate $-4(2)$: $-4(2) = -8$ Now, substitute these results back into the equation: $f(2) = 12 - 8 + 5$ Now, simplifying the expression step by step: Adding 12 and -8 first gives: $12 - 8 = 4$ Then, adding 5: $4 + 5 = 9$ Thus, the value of $f(2)$ is 9. However, based on your original choice indicating an answer of

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:

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

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