

8TH GRADE FAST MATHEMATICS PRE- ALGEBRA PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

<https://8thgradefastmathprealgebra.examzify.com>



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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 constant term of the polynomial $x^3 - 6x^2 + 11x - 6$?
- A. 6
 - B. -6
 - C. 0
 - D. -1
2. Evaluate $f(x) = 2x + 3$ at $x = -2$.
- A. -3
 - B. -1
 - C. -2
 - D. -4
3. What is the percent increase from 40 to 52?
- A. 50%
 - B. 20%
 - C. 30%
 - D. 40%
4. Factor: $8x^2 + 12x$
- A. $4x(2x+3)$
 - B. $8x^2+12x$
 - C. $2x(4x+9)$
 - D. $8x(x+2)$
5. Which statement describes a linear function?
- A. Its graph is a curve with changing slope
 - B. Its graph is a line but the rate of change is not constant
 - C. It is not a function
 - D. A function whose graph is a line; rate of change is constant
6. Solve the proportion $\frac{4}{9} = \frac{x}{27}$ for x .
- A. 108
 - B. 12
 - C. $\frac{27}{4}$
 - D. 9

7. Convert 4500 to scientific notation.

- A. 45×10^2
- B. 4.5×10^4
- C. 0.45×10^4
- D. 4.5×10^3

8. What is the slope of the line through points (0, 4) and (3, -2)?

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

9. If the system consists of two identical equations, what is the number of solutions?

- A. The lines are parallel
- B. Infinitely many solutions
- C. One solution
- D. No solution

10. Which transformation turns a figure around a fixed point by a specified angle?

- A. Rotations
- B. Translations
- C. Dilation
- D. Reflections

Answers

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

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Explanations

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1. What is the constant term of the polynomial $x^3 - 6x^2 + 11x - 6$?

- A. 6
- B. -6
- C. 0
- D. -1

The constant term is the number in a polynomial that has no x attached—that's the term with x raised to the power of 0. It's also what you get if you substitute $x = 0$, since all terms with x vanish. For $x^3 - 6x^2 + 11x - 6$, the terms with x are x^3 , $-6x^2$, and $11x$. What's left with no x is -6 , so the constant term is -6 . This is the option that shows -6 .

2. Evaluate $f(x) = 2x + 3$ at $x = -2$.

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

Evaluating a linear function means substituting the given x -value into the expression and simplifying. For $f(x) = 2x + 3$, plug in $x = -2$: $f(-2) = 2(-2) + 3 = -4 + 3 = -1$. So the function's value at $x = -2$ is -1 . If you got a different number, that would come from using a different x -value.

3. What is the percent increase from 40 to 52?

- A. 50%
- B. 20%
- C. 30%
- D. 40%

Percent change measures how much a number grows relative to its starting value. Here, the starting value is 40 and it increases to 52, so the increase is 12. To find the percent increase, divide the increase by the original amount and multiply by 100: $(12 \div 40) \times 100 = 30\%$. So the percent increase is 30%. For context, a 50% increase would take 40 to 60, a 20% increase would take it to 48, and a 40% increase would take it to 56. Only 30% gives you the 52 total.

4. Factor: $8x^2 + 12x$

- A. $4x(2x+3)$
- B. $8x^2+12x$
- C. $2x(4x+9)$
- D. $8x(x+2)$

Factoring out the greatest common factor. In $8x^2 + 12x$, both terms share $4x$, since $8x^2 = 4x \cdot 2x$ and $12x = 4x \cdot 3$. Pulling out $4x$ leaves $2x + 3$, so it factors as $4x(2x+3)$. Checking by distributing confirms: $4x \cdot 2x = 8x^2$ and $4x \cdot 3 = 12x$, which matches the original expression. Other forms don't fit because they change the middle term when expanded (for example, $2x(4x+9)$ expands to $8x^2 + 18x$) or leave the expression unfactored. So the correct factorization is $4x(2x+3)$.

5. Which statement describes a linear function?

- A. Its graph is a curve with changing slope
- B. Its graph is a line but the rate of change is not constant
- C. It is not a function
- D. A function whose graph is a line; rate of change is constant**

A linear function has a constant rate of change, which shows up as a straight-line graph. This means as x changes by equal amounts, y changes by the same amount each time, so the slope stays the same everywhere. The statement that describes a function whose graph is a line and whose rate of change is constant captures both ideas: it is a function (each x has exactly one y) and its graph is a line with constant slope. Therefore this is the description of a linear function. A curve with changing slope isn't linear, and a line with a nonconstant rate of change contradicts the idea of a straight line. A claim that it isn't a function would conflict with the fact that a straight, non-vertical line gives a unique y value for every x .

6. Solve the proportion $4/9 = x/27$ for x .

- A. 108
- B. 12**
- C. $27/4$
- D. 9

You're working with a proportion, so the two fractions are equal. Use cross-multiplication: 4 times 27 equals 9 times x . That gives $108 = 9x$, so $x = 108/9 = 12$. You can also see it by scaling the right side: x equals 27 times the fraction $4/9$, which is $27 \cdot (4/9) = 12$. Substituting back shows $12/27$ simplifies to $4/9$, confirming the solution.

7. Convert 4500 to scientific notation.

- A. 45×10^2
- B. 4.5×10^4
- C. 0.45×10^4
- D. 4.5×10^3**

In scientific notation, a number is written as $a \times 10^n$ with the a value between 1 and 10. For 4500, move the decimal three places to the left to get 4.5, and compensate with 10^3 . So $4500 = 4.5 \times 10^3$, which fits the standard form. Other representations either place the decimal so the coefficient isn't between 1 and 10 or would change the value if kept in standard form. For example, 45×10^2 equals 4500 but isn't in proper form; it would be rewritten as 4.5×10^3 . Similarly, 4.5×10^4 equals 45,000, and 0.45×10^4 is equivalent to 4.5×10^3 but isn't the standard way to present it.

8. What is the slope of the line through points (0, 4) and (3, -2)?

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

Slope tells you how steep a line is by comparing how much y changes when x changes. To find it between two points, use $m = (y_2 - y_1) / (x_2 - x_1)$. From (0, 4) to (3, -2), the vertical change is $-2 - 4 = -6$ and the horizontal change is $3 - 0 = 3$. So the slope is $(-6) / 3 = -2$. This means for every 1 unit you move to the right, the line drops 2 units. The negative sign shows the line goes downward as you go right. Among the options, -2 is the one that matches this rate of change.

9. If the system consists of two identical equations, what is the number of solutions?

- A. The lines are parallel
- B. Infinitely many solutions**
- C. One solution
- D. No solution

Two identical equations describe the same line. Every point on that line satisfies both equations, so there are infinitely many possible solutions for the pair of variables. In a two-variable system, a single linear equation already has infinitely many solutions along its line, and repeating it doesn't narrow that set. This distinguishes it from parallel lines (no solution) or two distinct lines that cross (one solution).

10. Which transformation turns a figure around a fixed point by a specified angle?

- A. Rotations**
- B. Translations
- C. Dilation
- D. Reflections

Rotating a figure means turning it around a fixed point by a given angle. Every point swings along a circular path centered at that fixed point, staying the same distance from the center. The center itself stays in place, and the overall size and shape don't change—the figure looks the same just turned. This is different from sliding it without turning, making it bigger or smaller, or flipping it over a line like in a mirror. Translations move the whole figure a certain distance in a straight direction. Dilations change the size of the figure. Reflections flip the figure over a line, reversing its orientation. The described action—turning around a fixed point by a specified angle—matches rotation.

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://8thgradefastmathprealgebra.examzify.com>

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

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