# Question 8 (1 Point)Solve The Equation:5(y+2)=-35Oay=-7y=-17by=-5Ody =-9

**Question 8 (1 Point) Solve The Equation: 5(y+2) = -35 O ay = -7 y = -17 by = -5 O dy = -9**

In this comprehensive guide, we will explore how to solve the given algebraic equation step-by-step. This question involves understanding and manipulating linear equations, working with variables, and applying fundamental algebraic principles. Whether you are a student preparing for exams or someone looking to sharpen your algebra skills, this detailed walkthrough will help clarify the process and provide insights into solving similar equations efficiently.

## Understanding the Question

The question appears to present multiple equations, but the core focus is on solving the main equation:

**$5(y + 2) = -35$**

The other expressions seem to list potential solutions or related equations:

- $ay = -7$
- $y = -17$
- $by = -5$
- $dy = -9$

For clarity, we will emphasize solving the primary equation and explore how the listed related equations connect or provide additional context.

## Breaking Down the Main Equation

The primary task is to solve:

$5(y + 2) = -35$

This is a linear equation in one variable, y. The goal is to isolate y and find its value.

## Step 1: Distribute the Coefficient

Apply the distributive property to eliminate parentheses:

1. Multiply 5 by each term inside the parentheses:

$5 y + 5 2 = -35$

which simplifies to:

$5y + 10 = -35$

## Step 2: Isolate the Variable Term

Subtract 10 from both sides to move constants to the right:

1. Subtract 10:

$5y + 10 - 10 = -35 - 10$

which simplifies to:

$5y = -45$

## Step 3: Solve for y

Divide both sides by 5 to solve for y:

1. Divide both sides by 5:

y = \(\frac{-45}{5}\)

which simplifies to:

$y = -9$

Result: The solution to the main equation is $y = -9$.

# Analyzing Related Equations and Solutions

The question lists other equations involving y:

- ay = -7
- y = -17
- by = -5
- dy = -9

Let’s interpret these in context:

## Equation: ay = -7

- If the value of a is known, you can solve for y:

1. y = $\frac{-7}{a}$

- Without a specific value for a, y remains expressed in terms of a.

## Equation: y = -17

- This indicates a fixed solution for y, which is -17, independent of other variables.

## Equation: by = -5

- Similar to the first, solving for y:

1. y = $\frac{-5}{b}$

- Again, depends on the value of b.

## Equation: dy = -9

- Solving for y:

1. $y = \frac{-9}{d}$

- Solution depends on the value of d.

Note: The initial main equation yielded $y = -9$, which corresponds to the solution for my equation. The other equations involve different coefficients and solutions, indicating multiple relationships or potential systems.

## Understanding the Significance of the Solution $y = -9$

The key takeaway from solving the main equation:

- The value of y that satisfies $5(y + 2) = -35$ is $y = -9$.
- This solution is unique for this linear equation.
- Recognizing such solutions helps in solving more complex algebraic systems.

## Applying the Solution in Different Contexts

Knowing how to solve for y in simple equations is foundational. Here are practical applications:

1. Solving for unknowns in word problems.
2. Understanding linear relationships in real-world scenarios.
3. Building a foundation for solving systems of equations.
4. Applying algebra in fields like engineering, economics, and sciences.

## Common Mistakes to Avoid

While solving equations, students often encounter errors. Be mindful of the following:

- Forgetting to distribute correctly across parentheses.
- Neglecting to perform the same operation on both sides of the equation.
- Dividing by a variable coefficient without verifying it's non-zero.

- Mixing up signs when subtracting or adding terms.

By carefully following each step and double-checking calculations, you can avoid these common pitfalls.

## Additional Practice Problems

To reinforce your understanding, try solving similar equations:

1. Solve $3(x + 4) = 12$
2. Solve $2(y - 3) = 8$
3. Solve $4(z + 5) = 0$
4. Given that $ay = -7$, find $y$ in terms of $a$.

By practicing these, you'll develop confidence in solving linear equations efficiently.

## Conclusion

In summary, the primary goal was to solve the equation $5(y + 2) = -35$. Through distribution, isolating the variable, and division, we arrived at $y = -9$. Understanding these steps is crucial for mastering algebra and solving a wide range of equations. The additional related equations emphasize the importance of recognizing variable relationships and solving for specific variables when coefficients are known. Remember, consistent practice and attention to detail are key to excelling in algebraic problem-solving.

## Meta-Description for SEO

Learn how to solve the algebraic equation $5(y + 2) = -35$ step-by-step. This comprehensive guide covers distribution, isolation, and solving for y, along with analysis of related equations. Perfect for students preparing for exams or improving algebra skills.

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Keywords: solve algebraic equations, linear equations, solving for y, algebra practice, step-by-step algebra, how to solve equations, basic algebra tips, solving equations with variables

# Frequently Asked Questions

## What is the solution to the equation 5(y + 2) = -35?

First, divide both sides by 5: y + 2 = -7. Then, subtract 2: y = -9.

## How do you solve for y in the equation 5(y + 2) = -35?

Expand to get 5y + 10 = -35, subtract 10 from both sides: 5y = -45, then divide by 5: y = -9.

## What is the value of y in the equation 5(y + 2) = -35?

y = -9.

## Is y = -9 a solution to the equation 5(y + 2) = -35?

Yes, substituting y = -9 gives 5(-9 + 2) = 5(-7) = -35, which satisfies the equation.

## Solve for y in the equation 5(y + 2) = -35 and verify the solution.

Solution: y = -9. Verification: 5(-9 + 2) = 5(-7) = -35, confirming y = -9 is correct.

## What are common steps to solve linear equations like 5(y + 2) = -35?

Distribute if needed, isolate the variable term, then solve for y by dividing or subtracting as required.

## Can the equation 5(y + 2) = -35 be solved by dividing both sides directly by 5?

Yes, dividing both sides by 5 simplifies the equation to y + 2 = -7, making it easier to solve for y.

## What is the importance of checking the solution y = -9 in the original equation?

Checking confirms the solution is correct; plugging y = -9 back into the original equation yields a true statement.

### Are there alternative methods to solve 5(y + 2) = -35?

Yes, you can expand and then simplify, or directly isolate y by dividing both sides by 5.

### What is the final answer to the equation 5(y + 2) = -35?

The solution is y = -9.

## Additional Resources

Mathematics: An Expert Breakdown of Solving the Equation 5(y+2) = -35

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## Introduction: Navigating the Fundamentals of Algebraic Equations

Mathematics, often regarded as the universal language, provides the tools to decode complex problems through logical reasoning and structured methods. Among its foundational concepts, solving linear equations stands out as a critical skill for students and professionals alike. The problem at hand—"Solve the equation 5(y+2) = -35"—serves as an excellent example to explore the systematic approach to algebraic solutions. This article will delve into each step with precision, providing clarity and expert insight, while also briefly examining the other expressions listed: y = -7, y = -17, y = -5, and y = -9, contextualizing their relevance in solving equations.

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## Understanding the Equation: Breaking Down 5(y+2) = -35

Before diving into solution strategies, it’s essential to comprehend the structure of the equation:

$$ 5(y+2) = -35 $$

This is a linear equation in one variable, y. The key components are:

- Coefficient of the parentheses: 5

- Expression inside parentheses: y + 2
- Constant on the right side: -35

The goal is to isolate y to find its value. To do this effectively, we employ algebraic principles like the distributive property, inverse operations, and balancing equations.

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# Step-by-Step Solution Process

## 1. Apply the Distributive Property

The first step involves expanding the left side:

$$ 5 \times y + 5 \times 2 = -35 $$

which simplifies to:

$$ 5y + 10 = -35 $$

Expert Tip: Always expand parentheses first to simplify the equation, especially when coefficients are outside parentheses.

## 2. Isolate the Term Containing y

Subtract 10 from both sides to move constants to one side:

$$ 5y + 10 - 10 = -35 - 10 $$

$$ 5y = -45 $$

Why subtract 10? Because it cancels out the +10 on the left, isolating the term with y.

## 3. Solve for y by Dividing

Divide both sides by 5 to solve for y:

$$ y = \frac{-45}{5} $$

$$ y = -9 $$

Expert insight: Dividing both sides by the coefficient of y ensures the variable is alone, giving the solution.

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# Interpreting the Solution and Its Context

The solution:

$$ y = -9 $$

is the point where the original equation holds true. To verify, substitute y = -9 back into the original equation:

$$ 5(-9 + 2) = -35 $$

Calculate inside parentheses:

$$ 5(-7) = -35 $$

which simplifies to:

$$ -35 = -35 $$

The verification confirms the solution's correctness.

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# Examining the Other Expressions: y = -7, y = -17, y = -5, y = -9

The list includes several potential solutions or values:

- y = -7
- y = -17
- y = -5
- y = -9

Out of these, y = -9 matches our derived solution, confirming it's the correct answer to the original equation.

Why are the others listed? They could be distractors or solutions to other related equations, but only y = -9 satisfies the original problem.

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## Common Mistakes to Avoid in Solving Such Equations

When tackling linear equations, students often stumble over:

- Forgetting to distribute properly: Missing the expansion can lead to incorrect solutions.
- Neglecting to perform inverse operations: Failing to subtract or divide appropriately can complicate the process.
- Sign errors: Losing track of positive and negative signs, especially after subtraction or division.
- Not verifying solutions: Always substituting back to check correctness.

Expert tip: Always double-check each step and verify the solution within the original equation.

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## Additional Practice Questions for Mastery

To strengthen understanding, consider practicing these similar problems:

- Solve: $4(y - 3) = 16$
- Find y if: $3(2y + 5) = 27$
- Solve for y: $-2(y + 4) = 10$

These problems reinforce distributive property, inverse operations, and solution verification.

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## Conclusion: Mastering the Art of Equation Solving

The detailed resolution of $5(y+2) = -35$ exemplifies key algebraic techniques—distributive expansion, inverse operations, and careful sign management—that form the backbone of solving linear equations. Recognizing that $y = -9$ is the precise solution, verified by substitution, underscores the importance of methodical approaches in mathematics.

Whether you're a student preparing for exams or a professional seeking to sharpen your problem-solving toolkit, understanding each step's rationale ensures not just correct answers but also a deeper appreciation for the elegance and logic inherent in algebra.

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## Final Thoughts: Embracing Mathematical Precision

In mathematics, clarity and accuracy are paramount. By dissecting the process thoroughly and understanding each component, you build confidence and competence. Remember, every complex problem is just a series of manageable steps—approach each with patience and precision, and solutions will follow seamlessly.

Happy solving!

## Question 8 1 Point Solve The Equation 5 Y 2 35oay 7y 17by 5ody 9

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