

Whats The Value Of $-15-9+(-7)$? A. -31 B. -17 C. -13 D. -1

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Understanding the value of expressions involving negative numbers is fundamental to mastering basic arithmetic and algebra. In this article, we will explore the step-by-step process to evaluate the expression $-15 - 9 + (-7)$, discuss the importance of understanding negative numbers, and provide tips for solving similar problems efficiently.

Breaking Down the Expression: $-15 - 9 + (-7)$

Before diving into calculations, it's essential to understand the structure of the expression. The expression contains three terms:

- -15 (a negative number)
- -9 (another negative number)
- $+ (-7)$ (adding a negative number, which is equivalent to subtracting 7)

The goal is to simplify this expression to a single value.

Understanding Negative Numbers and Operations

What Are Negative Numbers?

Negative numbers are numbers less than zero. They are represented with a minus sign ($-$) in front of the number. Negative numbers are used in various contexts such as temperature below zero, financial losses, or depths below sea level.

Operations with Negative Numbers

When working with negative numbers, certain rules apply:

- Adding a negative number: This is equivalent to subtracting its absolute value.

Example: $5 + (-3) = 5 - 3 = 2$

- Subtracting a negative number: This is equivalent to adding its absolute value.

Example: $5 - (-3) = 5 + 3 = 8$

- Adding two negative numbers: The sum is negative.

Example: $-2 + (-3) = -5$

- Subtracting a positive number: Reduces the value.

Example: $-2 - 3 = -5$

Understanding these rules is crucial for correctly evaluating expressions involving negative numbers.

Step-by-Step Evaluation of $-15 - 9 + (-7)$

Let's now evaluate the expression step-by-step.

Step 1: Write the expression clearly

$-15 - 9 + (-7)$

Step 2: Recognize the operations involved

- The first operation is subtraction: -15 minus 9 .
- The second operation is addition of a negative number: plus (-7) .

Step 3: Simplify the subtraction

Subtracting a positive number is equivalent to adding its negative.

$-15 - 9 = -15 + (-9) = ?$

Applying the rule for adding two negative numbers:

$-15 + (-9) = -(15 + 9) = -24$

Result after first step: -24

Step 4: Add the remaining term

Now, add the last term, $+ (-7)$:

$-24 + (-7) = ?$

Again, adding two negative numbers:

$-24 + (-7) = -(24 + 7) = -31$

Final result: -31

Answer Selection and Explanation

From the options provided:

- A. -31
- B. -17
- C. -13
- D. -1

The correct answer is A. -31.

Understanding Why -31 Is Correct

The step-by-step process confirms that:

- The initial subtraction $(-15 - 9)$ simplifies to -24.
- Adding -7 to -24 results in -31.
- Therefore, the value of the expression $-15 - 9 + (-7)$ is -31.

Practical Tips for Evaluating Negative Number Expressions

To efficiently evaluate similar expressions, consider the following tips:

- Always simplify from left to right, respecting the order of operations.
- Convert subtraction of a positive number into addition of a negative number when convenient.
- Combine like terms step-by-step to avoid mistakes.
- Use parentheses to clarify the order when dealing with complex expressions.
- Practice mental math with negative numbers to build confidence and speed.

Common Mistakes to Avoid

While evaluating expressions involving negative numbers, several common mistakes can occur:

1. **Misinterpreting subtraction of negatives as addition of positives.**
Remember that subtracting a negative is equivalent to addition.
2. **Forgetting to change the sign when simplifying expressions.** Always

double-check the signs after each operation.

3. **Confusing the order of operations.** Follow the standard hierarchy: parentheses, exponents, multiplication/division, addition/subtraction.

Additional Examples for Practice

To strengthen your understanding, try evaluating these similar expressions:

- Calculate: $-8 + (-12) + 5$
- Calculate: $-20 - (-5) + 10$
- Calculate: $7 - (-3) - (-2)$

Solutions:

- Example 1: $-8 + (-12) + 5 = -(8 + 12) + 5 = -20 + 5 = -15$
- Example 2: $-20 - (-5) + 10 = -20 + 5 + 10 = (-20 + 5) + 10 = -15 + 10 = -5$
- Example 3: $7 - (-3) - (-2) = 7 + 3 + 2 = 12$

Conclusion

Evaluating the expression $-15 - 9 + (-7)$ requires a clear understanding of how negative numbers interact with addition and subtraction. By breaking down the problem into manageable steps and applying the fundamental rules of negative number operations, we find that the value of the expression is -31 . Mastering these concepts is essential not only for basic arithmetic but also for more advanced mathematics, including algebra and calculus.

Remember to practice regularly, follow the step-by-step approach, and pay close attention to signs and order of operations. With consistent effort, evaluating negative number expressions becomes intuitive and quick, laying a strong foundation for further mathematical learning.

Summary:

- The expression evaluates to -31 .
- Correct evaluation involves converting subtraction to addition when necessary.
- Practice with similar problems to build confidence.
- Understanding negative numbers is crucial for broader mathematical proficiency.

By mastering these principles, you'll be well-equipped to handle a wide range of mathematical problems involving negative numbers and complex expressions.

Frequently Asked Questions

What is the result of the expression $-15 - 9 + (-7)$?

-31

Which option correctly represents the value of $-15 - 9 + (-7)$?

A. -31

How do you simplify the expression $-15 - 9 + (-7)$?

Combine the numbers: $-15 - 9 = -24$; then $-24 + (-7) = -31$.

What is the correct answer to $-15 - 9 + (-7)$?

-31

Among the options provided, which one is the result of $-15 - 9 + (-7)$?

A. -31

Additional Resources

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Introduction

Mathematics, often regarded as the universal language, relies heavily on fundamental operations and principles to solve complex problems. However, even simple arithmetic expressions can sometimes cause confusion, especially when involving negative numbers. One such example is determining the value of the expression $-15 - 9 + (-7)$. This article aims to explore this problem thoroughly, providing clarity on the operation process, underlying concepts, and the correct solution. We will also examine the importance of understanding negative numbers, the rules of addition and subtraction, and how these principles apply to real-world contexts.

The Core Question: What is $-15 - 9 + (-7)$?

At first glance, the expression appears straightforward, but careful analysis is necessary to avoid common mistakes. The primary goal is to evaluate the expression step-by-step:

```
\[
-15 - 9 + (-7)
\]
```

The options provided are:

- A. -31
- B. -17
- C. -13
- D. -1

Before jumping to conclusions, let's understand the rules involved when dealing with negative numbers and multiple operations.

Understanding Negative Numbers in Arithmetic

Definition and Significance

Negative numbers are used to represent quantities less than zero. They are essential in various fields such as finance (debts), temperature measurements, and physics (directional quantities). When performing operations involving negative numbers, specific rules govern addition and subtraction.

Basic Rules for Adding and Subtracting Negative Numbers

1. Adding a negative number:

$$\backslash (a + (-b) = a - b \backslash$$

(Subtract the absolute value of $\backslash(b\backslash$ from $\backslash(a\backslash)$)

2. Subtracting a negative number:

$$\backslash (a - (-b) = a + b \backslash$$

(Add the absolute value of $\backslash(b\backslash$ to $\backslash(a\backslash)$)

3. Adding two negative numbers:

$$\backslash (-a + (-b) = -(a + b) \backslash$$

(Sum the absolute values and keep the negative sign)

Understanding these rules is crucial for correctly evaluating the expression.

Step-by-Step Evaluation of the Expression

Let's analyze the expression:

$$\backslash [-15 - 9 + (-7) \backslash$$

Step 1: Address the first operation $(-15 - 9)$

- Subtract 9 from -15.

- Since subtracting a positive number from a negative number, the operation becomes:

$$\backslash [-15 - 9 = -15 + (-9) \backslash$$

- Applying the rule for adding two negative numbers:

$$\begin{aligned} & \backslash[\\ & -15 + (-9) = -(15 + 9) = -24 \\ & \backslash] \end{aligned}$$

Result after Step 1:

$$\begin{aligned} & \backslash[\\ & -24 + (-7) \\ & \backslash] \end{aligned}$$

Step 2: Add the remaining term (-7)

- Again, adding two negative numbers:

$$\begin{aligned} & \backslash[\\ & -24 + (-7) = -(24 + 7) = -31 \\ & \backslash] \end{aligned}$$

Final Result:

$$\begin{aligned} & \backslash[\\ & \boxed{-31} \\ & \backslash] \end{aligned}$$

Confirming the Correct Answer

Based on the detailed evaluation, the value of the expression $-15 - 9 + (-7)$ is -31 . Therefore, the correct choice among the options is A. -31 .

Why the Confusion?

Some might mistakenly think that subtracting a negative number becomes addition, but in this case, all the operations are straightforward. The confusion often arises from misinterpreting the operation signs or failing to apply the rules consistently.

Common mistakes include:

- Ignoring the negative signs and treating the operations as positive additions.
- Confusing subtraction with addition involving negatives.
- Miscalculating the intermediate steps.

A solid understanding of the rules for negative numbers is essential to avoid these pitfalls.

Broader Implications and Practical Applications

Understanding how to evaluate expressions involving negative numbers isn't just an academic exercise; it has real-world significance.

Financial Calculations

- Calculating net balances with debts (negative values).
- Assessing profit/loss scenarios.

Temperature Changes

- Determining temperature drops or rises, often represented with negative numbers.

Physics and Engineering

- Understanding directional vectors and forces.

In all these contexts, accurate arithmetic involving negatives ensures precise outcomes and informed decision-making.

Additional Practice Problems

To reinforce understanding, here are similar problems:

1. Evaluate $-12 + 8 - (-4)$
2. Find the value of $-20 - (-5) + 10$
3. Simplify $-7 + (-3) - (-2)$

Applying the rules outlined above will help develop fluency with negative numbers.

Summary

- The expression $-15 - 9 + (-7)$, when evaluated step-by-step, yields -31.
- The key is recognizing that subtracting a positive number from a negative number results in a more negative number.
- Adding two negative numbers involves summing their absolute values and attaching a negative sign.
- Correct application of these rules prevents common errors and fosters mathematical literacy.

Final Thoughts

Mathematics is a foundational skill that underpins many fields and everyday decisions. Mastering the handling of negative numbers, especially in compound expressions, builds confidence and competence. The evaluation of $-15 - 9 + (-7)$ exemplifies the importance of understanding fundamental concepts to arrive at correct solutions. As demonstrated, the correct answer is A. -31, reaffirming the necessity of careful, rule-based calculations.

Understanding these principles ensures not only academic success but also practical proficiency in interpreting and solving real-world problems involving negative values.

Keywords: Whats The Value Of $-15-9+(-7)$?, negative numbers, arithmetic operations, mathematical evaluation, basic algebra

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