Evaluate The Value Of A (B+c) When A= 51 , B= 15 & C= 2 .Please Answer This,Thank You

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Understanding how to evaluate algebraic expressions is fundamental in mathematics, as it helps in solving real-world problems, performing calculations efficiently, and developing critical thinking skills. In this article, we will thoroughly analyze the expression A (B + C) with the given values A= 51, B= 15, and C= 2. We will explore the step-by-step process of substitution, the order of operations, and the significance of each component within the expression. By the end of this discussion, you will have a comprehensive understanding of how to evaluate similar expressions with different values.

Understanding the Components of the Expression

Before diving into calculations, it is essential to understand the structure of the expression and the role of each variable.

What is the Expression?

The given expression is A (B + C), which combines multiplication and addition operations. It can be viewed as:
- Multiplying A by the sum of B and C.
- The expression demonstrates the order of operations, emphasizing the importance of handling parentheses first.

Variables and Their Values

- A = 51
- B = 15
- C = 2

Knowing these values allows us to perform substitution, replacing variables with their numerical counterparts.

Step-by-Step Evaluation Process

Evaluating the expression involves applying the order of operations, often remembered by the acronym PEMDAS (Parentheses, Exponents, Multiplication and Division, Addition and Subtraction).

Step 1: Simplify Inside Parentheses

Calculate B + C:
- B + C = 15 + 2 = 17

Step 2: Multiply by A

Multiply A by the result from step 1:
- A (B + C) = 51 17

Step 3: Final Calculation

Compute 51 17:
- 50 17 = 850
- 1 17 = 17
- Sum: 850 + 17 = 867

Result: The value of A (B + C) with the given values is 867.

Mathematical Significance of the Expression

Understanding the structure and evaluation of this expression provides insights into fundamental algebraic concepts.

The Distributive Property

The expression A (B + C) exemplifies the distributive property of multiplication over addition, which states:
- A (B + C) = A B + A C

Applying this property:
- 51 (15 + 2) = 51 15 + 51 2
- 765 + 102 = 867

This approach confirms our earlier calculation and demonstrates an alternative method of evaluation.

Importance in Problem Solving

- Recognizing the distributive property enables solving more complex

expressions efficiently.
- It aids in simplifying expressions before calculating, saving time and reducing errors.

Alternative Methods to Evaluate the Expression

While direct substitution and straightforward calculation are common, other methods can be employed for similar expressions.

Method 1: Distributive Property

- Break down the expression: A B + A C
- Substitute the values:
- 51 15 + 51 2
- Calculate each term:
- 765 + 102 = 867

This method is especially useful when dealing with algebraic expressions involving variables.

Method 2: Use of a Calculator

- Input the expression directly:
- (51) (15 + 2) = 51 17
- Confirm the result as 867.

Method 3: Visual Representation

- Think of the expression as an area model:
- Imagine a rectangle divided into parts representing B and C.
- The total area (A (B + C)) equals the sum of individual areas (A B + A C).

Practical Applications of Evaluating Such Expressions

Evaluating algebraic expressions like A (B + C) is not just an academic exercise; it has real-world applications.

Financial Calculations

- Computing total costs when quantities and unit prices are known.
- For example, if A represents the price per unit, B the number of units, and

C an additional fee.

Engineering and Design

- Calculating areas, volumes, or forces where multiple variables interact.
- Ensuring accurate measurements and assessments.

Science and Data Analysis

- Applying formulas that involve multiple variables.
- Analyzing experimental data where variables are combined in expressions.

Conclusion and Summary

In conclusion, evaluating the expression A (B + C) with A= 51, B= 15, and C= 2 involves understanding the order of operations, applying the distributive property, and performing basic arithmetic calculations. The step-by-step approach confirms that the value of the expression is 867. Recognizing the underlying properties and multiple methods of calculation enriches one's mathematical toolkit, fostering better problem-solving skills across various fields. Whether in academics, engineering, finance, or everyday life, mastering the evaluation of such expressions enhances analytical capabilities and supports informed decision-making.

Frequently Asked Questions

What is the value of (B + C) when B = 15 and C = 2?

The value of (B + C) is 17 because 15 + 2 = 17.

How do you evaluate A (B + C) given A = 51, B = 15, and C = 2?

First, find (B + C) which is 17, then multiply by A: 51 17 = 867.

What is the result of A multiplied by (B + C) when A=51, B=15, C=2?

The result is 867 because 51 multiplied by 17 equals 867.

If A=51, B=15, and C=2, what is the value of A times

the sum of B and C?

The value is 867, calculated as 51 (15 + 2) = 51 17 = 867.

Calculate A (B + C) with the given values: A=51, B=15, C=2.

The calculation is 51 (15 + 2) = 51 17 = 867.

Is the value of A (B + C) equal to 867 when A=51, B=15, C=2?

Yes, because 51 (15 + 2) equals 867.

What steps are involved in evaluating A(B + C) for A=51, B=15, C=2?

First, add B and C to get 17, then multiply by A: 51 17 = 867.

Can you confirm the value of 51 (15 + 2)?

Yes, it equals 867.

Why is the value of A(B + C) important in algebra?

It demonstrates the distributive property and helps in simplifying expressions.

What is the final answer to evaluate A=51, B=15, C=2 in the expression A(B + C)?

The final answer is 867.

Additional Resources

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In the world of mathematics, understanding how to evaluate expressions accurately is a fundamental skill that underpins many areas of science, engineering, finance, and everyday problem-solving. Today, we delve into a straightforward yet essential algebraic problem: calculating the value of the expression A (B + C) given specific values for A, B, and C. Specifically, with A = 51, B = 15, and C = 2, we aim to find the numerical value of A (B + C). This task, while seemingly simple, offers an excellent opportunity to explore core algebraic principles, demonstrate the step-by-step process of evaluation, and understand the importance of order of operations in mathematical computations.

Understanding the Expression: A (B + C)

Before jumping into the calculation, it’s crucial to understand what the expression A (B + C) signifies. In algebra, parentheses indicate that the operations within them should be performed first, following the order of operations—commonly abbreviated as PEMDAS (Parentheses, Exponents, Multiplication and Division, Addition and Subtraction).

- The expression A (B + C) involves:
- Addition inside the parentheses: B + C
- Multiplication of the result by A

This structure means that we first calculate the sum of B and C, then multiply that sum by A.

Why Is Order of Operations Important?

The order in which we perform calculations affects the result significantly. For example, consider the expression without parentheses: A B + C. Depending on interpretation, this could mean different things, but in standard algebra, multiplication takes precedence over addition. Therefore:

- With parentheses: A (B + C) → Perform B + C first, then multiply by A.
- Without parentheses: A B + C → Multiply A and B first, then add C.

In our specific case, the parentheses clarify the intended sequence: addition first, then multiplication.

Step-by-Step Evaluation

Given the values:

- A = 51
- B = 15
- C = 2

the calculation proceeds as follows:

Step 1: Calculate B + C

- B + C = 15 + 2 = 17

Step 2: Multiply the sum by A

- A × (B + C) = 51 × 17

Step 3: Perform the multiplication

- 51 × 17

To multiply 51 by 17 efficiently, we can use the distributive property:

- 51 × 17 = 51 × (10 + 7)
- = (51 × 10) + (51 × 7)
- = 510 + 357
- = 867

Final Answer: 867

Thus, the value of the expression A (B + C) with the given values is 867.

Implications and Applications of This Calculation

While this calculation appears straightforward, its significance extends into various real-world contexts and more complex mathematical applications.

1. Fundamental Algebra Skills

Understanding how to evaluate expressions like A (B + C) reinforces basic algebra skills, including:

- Recognizing the importance of parentheses
- Applying the order of operations
- Managing variables and constants

Mastery of these concepts is essential for tackling more advanced mathematics and ensuring accuracy in computations.

2. Practical Use Cases

- Finance and Budgeting: Suppose A represents a unit cost, B is an initial fee, and C is an additional surcharge. Calculating total costs using such expressions helps in budgeting and financial planning.
- Engineering: Calculations involving parameters like force, pressure, or voltage often involve similar algebraic expressions.
- Data Analysis: Formulas that combine multiple variables frequently require evaluating expressions similar to A (B + C).

Common Mistakes to Avoid

When evaluating expressions, several common pitfalls can lead to errors:

- Ignoring parentheses: Forgetting parentheses can change the order, leading to incorrect results.
- Misapplying order of operations: Multiplying before adding, or vice versa, can distort the outcome.
- Arithmetic errors: Simple addition or multiplication mistakes, especially with larger numbers, can affect the final result.

To avoid these errors, always:

- Follow the order of operations diligently.
- Double-check each step.
- Use parentheses liberally to clarify calculations.

Expanding Beyond the Basic Calculation

While evaluating A (B + C) with given values yields a clear answer, more complex scenarios might involve variables, algebraic expressions, or functions. Here are some extensions:

- Variable Expressions: If A, B, and C are variables, you might analyze how the expression behaves as values change.
- Algebraic Simplification: Sometimes, expressions can be simplified algebraically before substituting values, which can be useful in more advanced problems.
- Graphical Representation: Plotting the expression as a function of one variable can provide visual insights into its behavior.

Conclusion

In conclusion, evaluating the expression A (B + C) with A = 51, B = 15, and C = 2 results in a value of 867. This process underscores the importance of understanding the order of operations and the role of parentheses in algebraic expressions. Such fundamental skills serve as building blocks for more complex mathematical reasoning and practical problem-solving across various fields.

Whether you're a student honing your algebra skills, a professional applying mathematical formulas, or an enthusiast exploring the beauty of mathematics, mastering the evaluation of expressions like this is essential. By carefully following each step—computing the sum inside parentheses first, then multiplying—you ensure accuracy and develop a solid foundation for tackling more challenging mathematical tasks in the future.

Remember, at its core, mathematics is about clarity, precision, and logical progression. Evaluating simple expressions like A (B + C) exemplifies these principles, providing a stepping stone toward greater mathematical proficiency.

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