

What Is The Value Of $(\frac{4}{5} \text{ A } \frac{1}{3}) \times 5^2 + \frac{5}{6}$ Expressed In Simplest Form

What Is The Value Of $(\frac{4}{5} \text{ A } \frac{1}{3}) \times 5^2 + \frac{5}{6}$ Expressed In Simplest Form

Understanding mathematical expressions and simplifying them to their most basic form is a fundamental skill in mathematics. The given expression, $(\frac{4}{5} \text{ A } \frac{1}{3}) \times 5^2 + \frac{5}{6}$, involves fractions, exponents, and potentially ambiguous notation, which requires careful interpretation and application of mathematical principles. In this comprehensive guide, we will break down this expression step-by-step, interpret any ambiguous parts, and demonstrate how to simplify it systematically to arrive at its simplest value. Whether you're a student, educator, or math enthusiast, this detailed explanation will clarify the process and enhance your problem-solving skills.

Interpreting the Expression

Before diving into calculations, it's crucial to understand the components of the expression:

$$(\frac{4}{5} \text{ A } \frac{1}{3}) \times 5^2 + \frac{5}{6}$$

The key challenge here is interpreting the segment $(\frac{4}{5} \text{ A } \frac{1}{3})$. The letter "A" could stand for various operations depending on context, such as addition, subtraction, or perhaps a typo or formatting issue. Since standard mathematical notation does not include "A" as an operator, we need to analyze potential interpretations:

Possible Interpretations

1. Addition: $(\frac{4}{5} + \frac{1}{3})$
2. Subtraction: $(\frac{4}{5} - \frac{1}{3})$
3. Concatenation or other operation: Less likely in pure math context
4. Typographical error or placeholder

Given common mathematical practices, the most probable interpretation is that "A" represents addition. Therefore, the expression is likely:

$$(\frac{4}{5} + \frac{1}{3}) \times 5^2 + \frac{5}{6}$$

This assumption aligns with standard practices in algebra and simplifies understanding.

Step-by-Step Simplification

Now, with the clarified assumption, the expression becomes:

$$(4/5 + 1/3) \times 5^2 + 5/6$$

Let's proceed step-by-step:

1. Simplify the parentheses: $(4/5 + 1/3)$

To add fractions, find a common denominator:

- Denominators: 5 and 3
- Least common denominator (LCD): 15

Convert each fraction:

- $4/5 = (4 \times 3)/(5 \times 3) = 12/15$
- $1/3 = (1 \times 5)/(3 \times 5) = 5/15$

Add the fractions:

$$12/15 + 5/15 = (12 + 5)/15 = 17/15$$

2. Simplify the exponent: 5^2

Calculate:

$$5^2 = 25$$

3. Multiply the sum by 25

Now, multiply $(17/15)$ by 25:

$$\left[\frac{17}{15} \times 25 \right]$$

Express 25 as a fraction:

$$\left[\frac{17}{15} \times \frac{25}{1} \right]$$

Multiply numerators and denominators:

$$\left[\frac{17 \times 25}{15 \times 1} = \frac{425}{15} \right]$$

Simplify the fraction:

Divide numerator and denominator by 5:

$$\left[\right]$$

$$\frac{425 \div 5}{15 \div 5} = \frac{85}{3}$$

4. Add the remaining fraction: $\frac{5}{6}$

Now, the expression is:

$$\frac{85}{3} + \frac{5}{6}$$

Find a common denominator:

- Denominator 3 and 6
- LCD: 6

Convert $\frac{85}{3}$:

$$\frac{85}{3} = \frac{85 \times 2}{3 \times 2} = \frac{170}{6}$$

Now, add:

$$\frac{170}{6} + \frac{5}{6} = \frac{170 + 5}{6} = \frac{175}{6}$$

Final Simplified Result

The sum $(\frac{4}{5} + \frac{1}{3}) \times 5^2 + \frac{5}{6}$ simplifies to:

$$\boxed{\frac{175}{6}}$$

This is an improper fraction. To express it as a mixed number:

Divide 175 by 6:

- $6 \times 29 = 174$
- Remainder: $175 - 174 = 1$

Thus,

$$\frac{175}{6} = 29 \frac{1}{6}$$

\]

Therefore, the simplified value of the expression is:

29 1/6

Understanding the Significance of Simplification

Simplifying complex expressions like this is crucial for clarity, accuracy, and practical application. It allows for:

- Easier comparison between values
- Clearer understanding of relationships
- Efficient communication of mathematical ideas

In real-world contexts, such as engineering, finance, and data analysis, expressing results in simplest form ensures precision and comprehension.

Additional Considerations and Variations

While the above interpretation assumes "A" stands for addition, it's important to consider other possibilities:

If "A" Represents Subtraction

- The expression would be: $(\frac{4}{5} - \frac{1}{3}) \times 5^2 + \frac{5}{6}$

Follow similar steps:

- $\frac{4}{5} - \frac{1}{3}$:

Find common denominator 15:

\[

$$\frac{12}{15} - \frac{5}{15} = \frac{7}{15}$$

\]

Multiply by 25:

\[

$$\frac{7}{15} \times 25 = \frac{7 \times 25}{15} = \frac{175}{15} = \frac{35}{3}$$

\]

Add $\frac{5}{6}$:

Convert $\frac{35}{3}$ to denominator 6:

$$\frac{35}{3} = \frac{70}{6}$$

Add:

$$\frac{70}{6} + \frac{5}{6} = \frac{75}{6} = \frac{25}{2} = 12 \frac{1}{2}$$

If "A" is a different operation or typo

- Clarify the original expression for accurate interpretation.

Conclusion: Final Thoughts on Simplifying Mathematical Expressions

In this comprehensive analysis, we've dissected the expression $(\frac{4}{5} A \frac{1}{3}) \times 5^2 + \frac{5}{6}$, interpreted the ambiguous "A" as addition, and demonstrated the step-by-step process to simplify it to its simplest form, $29 \frac{1}{6}$. The key takeaways include:

- Carefully interpret the notation and symbols in complex expressions.
- Find common denominators when adding or subtracting fractions.
- Convert between improper fractions and mixed numbers for clarity.
- Always verify assumptions and consider alternative interpretations.

Mastering these skills enhances mathematical literacy and problem-solving efficiency. Whether you're tackling homework problems, preparing for exams, or applying math in professional settings, understanding how to simplify expressions accurately is an invaluable competence.

Meta-Description: Learn how to interpret and simplify the complex expression $(\frac{4}{5} A \frac{1}{3}) \times 5^2 + \frac{5}{6}$ into its simplest form with detailed step-by-step instructions, including common pitfalls and alternative interpretations.

Frequently Asked Questions

What is the simplified value of the expression $(\frac{4}{5} + \frac{1}{3}) \times 5^2$

+ 5/6?

First, find a common denominator for $(4/5 + 1/3)$: $(12/15 + 5/15) = 17/15$. Then, multiply by 5^2 (which is 25): $(17/15) \times 25 = (17 \times 25)/15 = 425/15$. Simplify $425/15$ to $85/3$. Next, add $5/6$: $85/3 + 5/6$. Find common denominator 6: $(170/6 + 5/6) = 175/6$. So, the value in simplest form is $175/6$.

How do you evaluate the expression $(4/5 + 1/3) \times 5^2 + 5/6$ in its simplest form?

Combine the fractions $4/5$ and $1/3$: $(12/15 + 5/15) = 17/15$. Multiply by 25 (since $5^2 = 25$): $(17/15) \times 25 = 425/15$. Simplify to $85/3$. Then, add $5/6$: Convert to common denominator 6: $(170/6 + 5/6) = 175/6$. The simplest form of the expression is $175/6$.

What is the step-by-step process to simplify $(4/5 + 1/3) \times 5^2 + 5/6$?

Step 1: Find common denominator for $4/5$ and $1/3$, which is 15: $(12/15 + 5/15) = 17/15$. Step 2: Calculate $5^2 = 25$. Step 3: Multiply $17/15$ by 25: $(17 \times 25)/15 = 425/15$. Simplify numerator and denominator: $85/3$. Step 4: Add $5/6$ to $85/3$ by converting $85/3$ to sixths: $(170/6)$. Now, sum: $170/6 + 5/6 = 175/6$. The final simplified answer is $175/6$.

Why is the simplified form of $(4/5 + 1/3) \times 5^2 + 5/6$ equal to $175/6$?

Because combining the fractions and performing the multiplications step-by-step leads to the sum $85/3$ plus $5/6$. Converting $85/3$ to sixths ($170/6$) and adding $5/6$ results in $175/6$, which is the simplest form of the expression.

Additional Resources

What Is The Value Of $(4/5 + 1/3) \times 5^2 + 5/6$ Expressed In Simplest Form is a question that combines multiple mathematical concepts, including fractions, exponents, and algebraic notation. This type of expression often appears in algebraic exercises, standardized tests, and real-world applications requiring precise calculations. Understanding how to interpret and simplify such an expression not only improves your mathematical fluency but also enhances problem-solving skills across various disciplines. In this comprehensive guide, we will break down each component of the expression, clarify the notation, and walk through the steps to arrive at the simplest possible form.

Understanding the Expression

Before diving into the calculations, it's essential to dissect the expression carefully:

$$(4/5 + 1/3) \times 5^2 + 5/6$$

At first glance, the notation $(4/5 + 1/3)$ may seem confusing. The letter A in this context typically

indicates an operation or a placeholder. Since the expression is somewhat ambiguous, a common interpretation is that A stands for an operation—most likely multiplication or addition—based on the context.

Clarifying the Notation

- Possible interpretations of "A":
- A = multiplication ($\times$)
- A = addition (+)
- A = subtraction ($-$)
- A = division ($\div$)

Given the structure and common mathematical notation, the most logical assumption is:

$$(4/5 \times 1/3)$$

which would be the most straightforward reading, especially because it makes sense to multiply these fractions, then multiply by 5^2 , and finally add $5/6$.

Assumption:

The expression is:

$$(4/5 \times 1/3) \times 5^2 + 5/6$$

Step 1: Simplify the Fractions in the Parentheses

Focus on $(4/5 \times 1/3)$.

Multiplying Fractions

Recall that when multiplying fractions:

$$\left[\frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times d} \right]$$

Applying this:

$$\left[\frac{4}{5} \times \frac{1}{3} = \frac{4 \times 1}{5 \times 3} = \frac{4}{15} \right]$$

So, the first part simplifies to $4/15$.

Step 2: Multiply the Result by 5^2

Next, multiply $4/15$ by 5^2 .

Calculating 5^2

$$\begin{aligned} & \backslash[\\ & 5^2 = 25 \\ & \backslash] \end{aligned}$$

Multiply:

$$\begin{aligned} & \backslash[\\ & \frac{4}{15} \times 25 \\ & \backslash] \end{aligned}$$

Express 25 as a fraction:

$$\begin{aligned} & \backslash[\\ & 25 = \frac{25}{1} \\ & \backslash] \end{aligned}$$

Now, multiply:

$$\begin{aligned} & \backslash[\\ & \frac{4}{15} \times \frac{25}{1} = \frac{4 \times 25}{15 \times 1} = \frac{100}{15} \\ & \backslash] \end{aligned}$$

Simplify 100/15:

- Both numerator and denominator are divisible by 5:

$$\begin{aligned} & \backslash[\\ & \frac{100 \div 5}{15 \div 5} = \frac{20}{3} \\ & \backslash] \end{aligned}$$

Thus, the product simplifies to $20/3$.

Step 3: Add $5/6$ to the Result

The current expression is:

$$\begin{aligned} & \backslash[\\ & \frac{20}{3} + \frac{5}{6} \\ & \backslash] \end{aligned}$$

Finding a common denominator

- Denominators are 3 and 6.
- The least common denominator (LCD) is 6.

Convert $20/3$ to sixths:

$$\frac{20}{3} = \frac{20 \times 2}{3 \times 2} = \frac{40}{6}$$

Now, the sum is:

$$\frac{40}{6} + \frac{5}{6} = \frac{40 + 5}{6} = \frac{45}{6}$$

Simplify the fraction:

- Both numerator and denominator are divisible by 3:

$$\frac{45 \div 3}{6 \div 3} = \frac{15}{2}$$

Final Result in Simplest Form

$$\boxed{\frac{15}{2}}$$

or as a mixed number:

$$7 \frac{1}{2}$$

This is the simplest form of the original expression, assuming the interpretation of the notation was correct.

Additional Notes and Variations

Clarifying Ambiguous Notation

If A was intended to be addition or subtraction, the calculation would differ. For example:

- If A = addition:

$$\left(\frac{4}{5} + \frac{1}{3}\right) \times 5^2 + \frac{5}{6}$$

which leads to a different intermediate result, but following similar steps.

- If A = subtraction:

$$\left[\left(\frac{4}{5} - \frac{1}{3} \right) \times 5^2 + \frac{5}{6} \right]$$

which also results in a different final answer.

In the absence of explicit clarification, the multiplication interpretation remains the most plausible.

Summary of the Step-by-Step Process

1. Identify the operation:

Assume A is multiplication based on typical notation.

2. Simplify the parentheses:

Multiply fractions: $\left(\frac{4}{5} \times \frac{1}{3} = \frac{4}{15} \right)$.

3. Calculate the exponent:

$(5^2 = 25)$.

4. Multiply the fractions:

$\left(\frac{4}{15} \times 25 = \frac{20}{3} \right)$.

5. Add the remaining term:

$\left(\frac{20}{3} + \frac{5}{6} = \frac{45}{6} = \frac{15}{2} \right)$.

6. Express in simplest form:

$\left(\frac{15}{2} \right)$ or $\left(7 \frac{1}{2} \right)$.

Final Thoughts

Understanding how to approach complex expressions involves breaking them down into manageable steps: simplifying fractions, applying exponent rules, finding common denominators, and reducing fractions to their simplest form. Although the original question's notation can be ambiguous, logical assumptions lead to a clear and concise answer. Mastery of these fundamental skills is essential for tackling more advanced algebraic problems and real-world calculations.

If you encounter similar expressions in your studies or work, remember to:

- Clarify ambiguous notation.
- Break down the problem into smaller parts.
- Apply fundamental operations systematically.
- Simplify at each stage to avoid confusion.

With practice, such calculations become straightforward, and you gain confidence in handling increasingly complex mathematical expressions.

In conclusion, the value of $(\frac{4}{5} A \frac{1}{3}) \times 5^2 + \frac{5}{6}$, assuming A indicates multiplication, is $\boxed{\frac{15}{2}}$.

What Is The Value Of 4 5 A 1 3 X 5 2 5 6 Expressed In Simplest Form

What Is The Value Of 4 5 A 1 3 X 5 2 5 6 Expressed In Simplest Form

Related Articles

- [Its Estimated Salvage Value Is \\$109.200 And Its Expected Life Is 4 Years](#)
- [Nbs Bromination Of Cyclohexa-1,4-diene Yields 2 Products. Draw Them.](#)
- [When You Create A Best Fit Line What Is The Expected Value Of The Slope?](#)

[Back to Home](#)