

What Is $18+6$ Divided By 3×2 Please Show Step By Step

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Understanding basic arithmetic operations is fundamental in mathematics, whether you're a student, a professional, or simply someone who enjoys solving puzzles. One common question that often appears in math exercises involves combining addition, division, and multiplication in a single expression. Today, we will explore the expression $18+6$ divided by 3×2 —which, when carefully analyzed, becomes an interesting example of applying order of operations (PEMDAS/BODMAS rules).

This article aims to clarify exactly what this expression entails, how to interpret it correctly, and the step-by-step process to arrive at the correct answer. We will also discuss common misconceptions, the importance of proper notation, and tips for solving similar expressions efficiently and accurately.

Understanding the Components of the Expression

Before diving into calculations, it's essential to understand the components involved:

- $18 + 6$: A basic addition operation.
- Divided by: This phrase indicates division, although it's misspelled; the correct term is "divided by."
- 3×2 : Represents multiplication, specifically 3 multiplied by 2.

The phrase "divided by 3×2 " might seem ambiguous at first glance. When interpreting such expressions, the key is to understand the intended grouping and the order of operations.

Clarifying the Expression: Typical Interpretations

Given the phrase, the most straightforward interpretation is:

$$(18 + 6) \div (3 \times 2)$$

This is because:

- The phrase "divided by 3×2 " suggests division by the product of 3 and 2.
- The presence of addition before division indicates that the sum $(18 + 6)$ should be calculated first.
- Parentheses are implied to clarify the order, especially in written or typed math.

However, if the expression was written as:

$$18 + 6 \div 3 \times 2$$

Then, the order of operations would differ, leading to a different result.

Step-by-Step Calculation of the Expression

Step 1: Clarify the Expression

Based on common mathematical notation and context, the most logical expression to evaluate is:

$$(18 + 6) \div (3 \times 2)$$

Step 2: Calculate the Sum in the Numerator

$$- 18 + 6 = 24$$

Step 3: Calculate the Product in the Denominator

$$- 3 \times 2 = 6$$

Step 4: Divide the Numerator by the Denominator

$$- 24 \div 6 = 4$$

Final Answer: 4

This step-by-step approach ensures clarity and accuracy.

Alternate Interpretation: Without Parentheses

If, however, the expression is interpreted as:

$$18 + 6 \div 3 \times 2$$

then the calculation proceeds differently, following the order of operations:

Step 1: Division and Multiplication First (left to right)

$$- 6 \div 3 = 2$$

$$- 2 \times 2 = 4$$

Step 2: Addition

$$- 18 + 4 = 22$$

Result in this case: 22

Importance of Proper Notation and Clarity

Mathematical expressions can be ambiguous if not written carefully. To avoid confusion:

- Always use parentheses to specify grouping.
- Clearly distinguish between addition, subtraction, multiplication, and division.
- Be aware of the standard order of operations: parentheses first, then exponents, followed by multiplication and division (left to right), and finally addition and subtraction (left to right).

In our initial interpretation, parentheses clarified the expression to be:

$$(18 + 6) \div (3 \times 2) = 4$$

which is generally the intended way to interpret such a phrase.

Common Mistakes and How to Avoid Them

Mistake 1: Ignoring the Order of Operations

- Problem: Performing operations from left to right without considering precedence.
- Solution: Remember the PEMDAS/BODMAS rules.

Mistake 2: Misreading the Expression

- Problem: Confusing division with multiplication or vice versa.
- Solution: Use parentheses to clarify groupings, or rewrite the expression clearly.

Mistake 3: Misspelling or Miswriting Terms

- Problem: "Divided bye" instead of "divided by" can cause confusion.
- Solution: Double-check the wording and ensure proper notation when solving or sharing expressions.

Tips for Solving Similar Expressions

- Always identify the operators and their precedence. Use PEMDAS/BODMAS as your guide.
- Use parentheses liberally to make your intentions clear.
- Break down complex expressions into smaller parts.
- Check your work by reversing operations when possible.
- Practice with varied expressions to become comfortable with different scenarios.

Conclusion

The expression $18+6$ divided by 3×2 please show step by step exemplifies the importance of understanding and applying order of operations correctly. Interpreting the phrase as $(18 + 6) \div (3 \times 2)$ yields a result of 4 through a straightforward, step-by-step process:

1. Sum the numerator: $18 + 6 = 24$.
2. Calculate the denominator: $3 \times 2 = 6$.
3. Divide: $24 \div 6 = 4$.

Always emphasize clarity in your expressions, use proper notation, and verify your steps to avoid mistakes. Whether you're tackling simple arithmetic or complex algebra, mastering these principles will ensure accurate and efficient problem-solving.

Remember: When in doubt, clarify your expression with parentheses and double-check your calculations. Practice makes perfect, and understanding the underlying rules will help you confidently handle similar mathematical questions in the future.

Frequently Asked Questions

What is the value of $18 + 6$ divided by 3 times 2?

First, follow the order of operations: division and multiplication from left to right. 6 divided by 3 is 2, then multiply by 2: $2 \times 2 = 4$. Now, add $18 + 4$, which equals 22. So, the answer is 22.

How do I solve $18 + 6 \div 3 \times 2$ step by step?

Step 1: Divide 6 by 3, which gives 2. Step 2: Multiply that result by 2, so $2 \times 2 = 4$. Step 3: Add $18 + 4$, resulting in 22. The final answer is 22.

Is the expression $18 + 6 \div 3 \times 2$ solved by following order of operations?

Yes. According to the order of operations, perform division and multiplication from left to right before addition. So, $6 \div 3 = 2$, then $2 \times 2 = 4$, and finally $18 + 4 = 22$.

What is the simplified result of $18 + 6 \div 3 \times 2$?

The simplified result is 22. Breaking it down: $6 \div 3 = 2$, then $2 \times 2 = 4$, and $18 + 4 = 22$.

Why is the answer to $18 + 6 \div 3 \times 2$ equal to 22?

Because following the order of operations, you perform division and multiplication first: $6 \div 3 = 2$, then $2 \times 2 = 4$, and finally add $18 + 4$ to get 22.

Could the expression $18 + 6 \div 3 \times 2$ be interpreted differently?

No, according to standard mathematical rules (PEMDAS/BODMAS), division and multiplication are performed from left to right, so the interpretation is fixed, leading to the answer 22.

What is the step-by-step calculation for $18 + 6 \div 3 \times 2$?

Step 1: $6 \div 3 = 2$. Step 2: $2 \times 2 = 4$. Step 3: $18 + 4 = 22$. The final answer is 22.

Can I use a calculator to verify $18 + 6 \div 3 \times 2$?

Yes. Enter the expression exactly as written: $18 + 6 \div 3 \times 2$. The calculator should give you 22, confirming the step-by-step solution.

Additional Resources

What Is $18+6$ Divided By 3×2 Please Show Step By Step

When it comes to solving mathematical expressions, clarity and precision are essential. The phrase "What is $18+6$ divided by 3×2 please show step by step" involves multiple operations—addition, division, and multiplication—that require careful handling to arrive at the correct answer. Understanding how to approach such expressions not only improves math skills but also builds confidence in tackling complex problems. In this article, we'll break down this expression step-by-step, explain the order of operations, and provide a detailed guide to solving similar problems efficiently.

Understanding the Expression

Before diving into calculations, it's vital to interpret the expression correctly. The phrase suggests the expression:

$$(18 + 6) \div 3 \times 2$$

However, it's important to clarify whether the division and multiplication are intended to be performed from left to right (as per the standard order of operations), or if parentheses should be added to specify the sequence explicitly.

Key Components:

- Addition: $18 + 6$
- Division: $\div 3$
- Multiplication: $\times 2$

The Importance of the Order of Operations

Mathematics follows specific rules for the sequence in which operations are performed. These rules are often summarized by the acronym PEMDAS:

- Parentheses first
- Exponents next
- MD (Multiplication and Division) from left to right
- AS (Addition and Subtraction) from left to right

Applying PEMDAS ensures everyone interprets and solves expressions consistently.

In our expression, there are no parentheses or exponents, so the operations are performed following multiplication and division from left to right, then addition.

Step-by-Step Breakdown

Let's now process the expression $18 + 6 \div 3 \times 2$ step by step, following the order of operations.

Step 1: Rewrite the Expression Clearly

Express the problem explicitly:

$$18 + 6 \div 3 \times 2$$

Step 2: Identify the Operations

- Addition: $18 + 6$ (but note the order, as division and multiplication come first)
- Division: $6 \div 3$
- Multiplication: result of previous division $\times 2$

Step 3: Perform Division and Multiplication from Left to Right

Since addition is at the end of the expression, we first handle the division and multiplication.

a. Division: $6 \div 3$

$$- 6 \div 3 = 2$$

b. Multiplication: result $\times 2$

$$- 2 \times 2 = 4$$

Step 4: Final Calculation

Now, substitute back into the original expression:

$$18 + (\text{result of division and multiplication})$$

Since the division and multiplication are performed in sequence, the expression simplifies to:

$$18 + 4 = 22$$

Clarifying the Final Answer

Based on the standard order of operations, $18 + 6 \div 3 \times 2$ equals 22.

Additional Considerations: Parentheses and Alternative Interpretations

Sometimes, expressions can be ambiguous. If the original question intended for the addition to happen first, with the division applying to the sum, the expression would be:

$$(18 + 6) \div 3 \times 2$$

Now, let's see how the calculation changes with parentheses.

Alternative Calculation with Parentheses

Step 1: Calculate the sum inside parentheses:

$$- 18 + 6 = 24$$

Step 2: Divide by 3:

$$- 24 \div 3 = 8$$

Step 3: Multiply by 2:

$$- 8 \times 2 = 16$$

Result: 16

Summarizing the Two Scenarios

Scenario	Expression	Calculation Steps	Final Result
No parentheses (standard PEMDAS)	$18 + 6 \div 3 \times 2$	$6 \div 3 = 2$; $2 \times 2 = 4$; $18 + 4 = 22$	22
With parentheses	$(18 + 6) \div 3 \times 2$	$24 \div 3 = 8$; $8 \times 2 = 16$	16

Always clarify the intended order of operations when dealing with ambiguous expressions.

Tips for Solving Similar Expressions

- Identify the operations involved and their order.
- Use parentheses to clarify the intended sequence.
- Perform division and multiplication from left to right, as they have equal precedence.
- Add parentheses to make complex expressions easier to interpret.
- Double-check calculations at each step to avoid errors.

Practice Problems

To master these concepts, try solving the following:

1. $(12 + 8) \div 4 \times 3$
2. $20 - 5 \times 2 + 3$
3. $(15 \div 3) + 4 \times 2$

Work through each step carefully, applying PEMDAS and noting the order of operations.

Conclusion

Understanding "What is $18+6$ divided by 3×2 please show step by step" hinges on recognizing the importance of the order of operations. Whether you interpret the expression as $18 + 6 \div 3 \times 2$ or with parentheses, following the correct sequence ensures accurate results. In the absence of parentheses, the standard approach yields 22; with parentheses, the result is 16. Developing confidence in these methods allows you to tackle more complex algebraic expressions with ease and precision. Remember, clarity in notation and careful step-by-step calculation are your best tools for success in math!

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