Find The Product. 0.75(68)

Find The Product. 0.75(68) is a phrase that might seem cryptic at first glance, but it actually points toward a common mathematical process—finding the product of two numbers, specifically 0.75 and 68. Understanding how to compute this product is essential for various practical applications, from financial calculations to academic exercises. In this comprehensive guide, we will explore the meaning behind this expression, the methods to compute the product accurately, and the real-world scenarios where such calculations are relevant.

Understanding the Expression: Find The Product. 0.75(68)

Breaking Down the Components

The phrase "Find The Product" indicates a multiplication task. The numbers involved are 0.75 and 68, with 0.75 being a decimal representing three-quarters and 68 being an integer.

- 0.75: A decimal equivalent of the fraction 3/4.
- 68: An integer, often representing a count, measure, or monetary value.

The notation "0.75(68)" is a shorthand for multiplying 0.75 by 68, a common notation in mathematics and engineering.

Why Is Calculating the Product Important?

Understanding how to multiply decimals and whole numbers is fundamental across numerous disciplines:

- Finance: Calculating discounts, interest, or proportional shares.
- Statistics: Adjusting data points or calculating weighted averages.
- Science: Computing measurements, concentrations, or scaling factors.
- Daily Life: Budgeting expenses, cooking measurements, or planning.

Methods for Calculating the Product

Calculating 0.75 multiplied by 68 can be approached through different methods depending on your comfort level with mathematics.

Method 1: Direct Multiplication

This is the most straightforward approach.

1. Write the numbers as they are:
- 0.75 × 68
2. Use a calculator or perform manual multiplication.
3. The calculation:
- 0.75 × 68 = ?

Calculation:
0.75 × 68 = (3/4) × 68

Since 0.75 is 3/4, you can also think of it as:

(3/4) × 68 = (3 × 68) ÷ 4

Calculate numerator:
3 × 68 = 204

Divide by 4:
204 ÷ 4 = 51

Result:
0.75 × 68 = 51

Method 2: Using Decimal Multiplication

Alternatively, multiply as decimals:

1. Express 0.75 as a decimal.
2. Multiply:
- 0.75 × 68

Performing multiplication:
- Multiply 75 by 68:
75 × 68 = (75 × 60) + (75 × 8) = 4,500 + 600 = 5,100
- Since 0.75 is three-quarters, move the decimal point two places:
- 5,100 becomes 51

Result:
Again, the product is 51.

Method 3: Using Percentage Approach

Since 0.75 is 75%, you can think of the calculation as:

- 75% of 68

Calculate 10% of 68:
- 10% of 68 = 6.8

Multiply by 7.5 (because 75% = 7.5 × 10%):
- 6.8 × 7.5 = ?

Calculate:
- 6.8 × 7 = 47.6
- 6.8 × 0.5 = 3.4
- Add together: 47.6 + 3.4 = 51

Result:
Confirmed as 51.

Real-World Applications of the Calculation

Understanding how to find the product of 0.75 and 68 extends beyond the realm of pure mathematics into everyday scenarios.

Financial Calculations

Suppose you are shopping and receive a 25% discount on an item priced at $68. To find out how much you save:

- Discount rate: 25% = 0.25
- Price: $68
- Savings: 0.25 × 68 = $17

Alternatively, if the discount is 75%, then:

- Savings: 0.75 × 68 = $51

This aligns with the calculation we've performed, illustrating the importance of understanding decimal multiplication.

Cooking and Recipes

If a recipe requires 0.75 cups of an ingredient per serving, and you’re preparing for 68 servings, the total amount needed is:

- 0.75 × 68 = 51 cups

This showcases how scaling recipes relies on accurate multiplication of decimal quantities.

Measurement and Scaling

In engineering or manufacturing, scaling measurements often involves multiplying dimensions or quantities by decimal factors. For example, if a component's size is scaled by 0.75 and the original measurement is 68 units, the new size will be 51 units.

Common Mistakes and Tips for Accurate Calculation

While performing such calculations seems straightforward, certain pitfalls can lead to errors.

Avoid Misplacement of Decimal Points

Always double-check your multiplication, especially when converting between fractions, decimals, and percentages.

Use Reliable Tools

Calculators are handy, but manual calculations reinforce understanding. When doing manual calculations:

- Write numbers carefully.
- Break down complex multiplication into smaller parts.
- Verify results with alternative methods.

Practice with Variations

Practice multiplying different decimal numbers by whole numbers to build confidence and accuracy.

Conclusion: Mastering the Calculation of 0.75(68)

Finding the product of 0.75 and 68 is a fundamental skill that supports diverse practical applications, from financial planning to everyday tasks like cooking and shopping. Whether you prefer direct multiplication, fraction-based calculations, or percentage reasoning, the key is understanding the relationships between decimals, fractions, and percentages.

Remember that the product of 0.75 and 68 is 51, a result that can be achieved through multiple methods, each reinforcing your numerical literacy. Developing fluency in such calculations enhances your problem-solving skills and confidence in handling real-world scenarios involving proportional reasoning.

By mastering this simple yet essential calculation, you prepare yourself to tackle more complex mathematical challenges and make informed decisions in daily life and professional contexts.

Frequently Asked Questions

What is the product of 0.75 and 68?

The product of 0.75 and 68 is 51.

How can I quickly calculate 0.75 times 68 without a calculator?

You can multiply 68 by 3/4 (which is 0.75). Since 68 × 3 = 204, divide 204 by 4 to get 51.

Is 0.75(68) equal to 51?

Yes, 0.75(68) equals 51.

What is the simplified form of the multiplication 0.75 × 68?

It simplifies to (3/4) × 68, which equals 51.

Can I use mental math to find 0.75 times 68?

Yes, by recognizing that 0.75 is 3/4, you can find three-quarters of 68. Half of 68 is 34, and a quarter of 68 is 17, so three-quarters is 34 + 17 = 51.

What real-world scenarios involve calculating 0.75 of 68?

Examples include finding 75% of a quantity, such as a discount, a portion of an amount, or a measurement in a recipe or construction project.

Additional Resources

Find The Product. 0.75(68): An In-Depth Analytical Review

In the realm of mathematical problem-solving and algebraic expressions, the phrase "Find The Product. 0.75(68)" may seem straightforward at first glance, but it encapsulates several underlying concepts that merit closer examination. This article endeavors to dissect this problem comprehensively, exploring its mathematical significance, practical applications, and the reasoning

processes involved. Through detailed explanations, contextual insights, and analytical perspectives, we aim to illuminate the nuances behind this seemingly simple expression.

Understanding the Core Components: What Does 0.75(68) Represent?

The Multiplicative Expression

At its core, the expression "0.75(68)" represents a multiplication operation. The number 0.75 is a decimal equivalent to the fraction ¾, and it's multiplied by the number 68. In mathematical terms:

$$ 0.75 \times 68 $$

This form of notation is common in algebra and arithmetic, often used to denote the product of two factors.

Interpreting the Expression

The purpose of this calculation can vary depending on the context, such as:

- Calculating a portion or percentage of a quantity
- Scaling a number by a certain factor
- Applying a coefficient to modify a value

In practical terms, understanding what the product signifies depends on real-world application, but from a purely mathematical perspective, it's a simple multiplication problem.

Step-by-Step Calculation and Explanation

Converting Decimals to Fractions for Clarity

While decimal notation is convenient, converting 0.75 to a fraction can aid in understanding:

$$ 0.75 = \frac{75}{100} = \frac{3}{4} $$

Thus, the expression becomes:

$$ \frac{3}{4} \times 68 $$

Performing the Multiplication

Multiplying a fraction by a whole number involves multiplying the numerator by the whole number and keeping the denominator the same:

$$ \frac{3}{4} \times 68 = \frac{3 \times 68}{4} $$

Calculating the numerator:

$$ 3 \times 68 = 204 $$

Now, dividing by the denominator:

$$ \frac{204}{4} = 51 $$

Therefore, the product of 0.75 and 68 is 51.

Confirming the Result in Decimal Form

Alternatively, performing the calculation directly in decimal form:

$$ 0.75 \times 68 = 51 $$

This confirms the earlier result, illustrating consistency across different methods.

Mathematical Significance and Broader Implications

Percentage Context

Since 0.75 is equivalent to 75%, the calculation can be viewed as:

- Finding 75% of 68
- Determining a discounted or discounted price if 25% is subtracted

This has practical implications in areas such as finance, shopping, and data analysis.

Real-World Applications

1. Financial Calculations
- Calculating interest rates
- Determining discounts or markdowns
2. Statistics
- Computing weighted averages
- Applying proportions
3. Science and Engineering
- Scaling measurements
- Adjusting experimental data

Significance in Education

This problem exemplifies foundational algebra skills, including:

- Recognizing decimal-fraction equivalence
- Performing multiplication involving fractions and decimals
- Applying contextual interpretation of mathematical expressions

Understanding such basic operations lays the groundwork for more complex problem-solving.

Extensions and Variations of the Problem

Exploring Different Factors

1. Changing the Multiplier
- What if the factor was 0.5 or 1.25?
- How does the product change?
2. Varying the Second Number
- What if the number 68 was replaced with other values?
- How does the product scale?

Applying Different Mathematical Operations

- Division: What is 68 divided by 0.75?
- Addition/Subtraction: How does adding or subtracting certain values affect outcomes?

Contextual Word Problems

- If a store offers a 25% discount on a $68 item, what is the sale price?
- If 75% of a population of 68 people are vaccinated, how many are vaccinated?

These variations demonstrate the versatility of the core concept and its relevance across disciplines.

Analytical Perspectives and Critical Thinking

Evaluating the Significance of the Product

While the numerical answer is straightforward, the broader implications include:

- Recognizing proportions and percentages in everyday contexts
- Developing estimation skills
- Understanding the relationship between parts and wholes

Limitations and Common Mistakes

- Misreading decimal points: Confusing 0.75 with 7.5 can lead to incorrect calculations.
- Misapplication of operations: Forgetting to convert fractions or decimals properly.
- Overlooking context: Not considering the real-world meaning behind the calculation.

Strategies for Accurate Computation

- Convert decimals to fractions for clarity
- Double-check calculations using different methods
- Understand the problem context to interpret results meaningfully

Conclusion: The Significance of Simple Calculations in Complex Contexts

The expression "Find The Product. 0.75(68)" exemplifies how seemingly simple mathematical problems are foundational to understanding more complex concepts. By dissecting this calculation, we see the importance of converting between decimals and fractions, applying basic multiplication principles, and interpreting the results within real-world contexts. Such problems emphasize that mastery of fundamental operations not only enhances computational accuracy but also empowers individuals to solve practical issues involving percentages, proportions, and scaling.

In essence, this problem serves as a microcosm of mathematical literacy—highlighting the necessity of precision, contextual awareness, and analytical thinking. Whether in shopping discounts, financial planning, or scientific measurements, understanding how to find the product of two numbers like 0.75 and 68 is an essential skill that bridges theoretical knowledge and everyday application. As we continue to develop our mathematical toolkit, recognizing the significance of such foundational problems ensures we are better equipped to navigate the quantitative aspects of our world with confidence and clarity.

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