

Find The Quotient Of 68.0052 And 12 Round Your Answer To The Nearest Hundredth ILL GOVE BRAINLIEST

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is a common mathematical problem that involves dividing two numbers and then rounding the result to a specified decimal place. This type of problem not only enhances your arithmetic skills but also helps improve your understanding of rounding rules and decimal precision. Whether you're a student preparing for math exams or someone looking to sharpen your basic math skills, mastering how to find quotients and round them accurately is essential. In this comprehensive guide, we will walk you through the step-by-step process of dividing 68.0052 by 12, rounding the answer to the nearest hundredth, and understanding the key concepts involved. Additionally, we will explore strategies for solving similar problems efficiently and provide tips to avoid common mistakes. Let's delve into the process and learn how to confidently handle division and rounding tasks.

Understanding the Problem

Before jumping into calculations, it's important to understand what the problem asks for:

- The dividend: 68.0052
- The divisor: 12
- The desired output: The quotient rounded to the nearest hundredth

This involves two main steps:

1. Division: Calculating the quotient of 68.0052 divided by 12.
2. Rounding: Rounding the result to two decimal places (nearest hundredth).

Step-by-Step Guide to Find the Quotient

Step 1: Perform the Division

The first step is to divide 68.0052 by 12. You can do this manually or with a calculator, but for accuracy and efficiency, using a calculator is recommended.

Calculation:

$$\left[\frac{68.0052}{12} \right]$$

Using a calculator:

- Input 68.0052
- Divide by 12

Result:

$$\left[68.0052 \div 12 = 5.6661 \right]$$

So, the exact quotient is approximately 5.6661.

Step 2: Round to the Nearest Hundredth

Rounding to the nearest hundredth means keeping two decimal places. To do this correctly, follow these rules:

- Look at the third decimal digit (the thousandth place).
- If this digit is 5 or greater, increase the second decimal digit by 1.
- If it is less than 5, keep the second decimal digit unchanged.

Applying the rules:

- Current quotient: 5.6661
- The third decimal digit is 6 (the thousandth place)
- Since $6 \geq 5$, round up the second decimal digit (which is 6)

Rounding:

- The second decimal digit: 6
- Increase by 1: $6 + 1 = 7$

Final rounded answer:

$$\left[5.6661 \approx 5.67 \right]$$

Thus, the quotient of 68.0052 divided by 12, rounded to the nearest hundredth, is 5.67.

Key Concepts and Tips for Accurate Division and Rounding

Understanding Decimal Division

Dividing decimals may seem complex at first, but following these tips can simplify the process:

- Eliminate decimals in division: Multiply both numerator and denominator by powers of 10 to convert to whole numbers.
- Use a calculator: For precise results, especially with long decimals, calculators are reliable tools.
- Estimate first: Before precise calculation, estimate to check if your answer makes sense.

Rounding Rules and Best Practices

Proper rounding ensures your answers are accurate within specified precision. Remember:

- Always identify the digit immediately after the place you're rounding to.
- Follow the standard rounding rule: if this digit ≥ 5 , round up; if < 5 , round down.
- Be consistent with decimal places, especially in multi-step calculations.

Common Mistakes to Avoid

- Rounding too early: Always perform the division first, then round the final result.
- Incorrectly identifying the rounding digit: Double-check the place value.
- Forgetting to adjust the digit after rounding: Increase or decrease the digit based on the next digit.

Additional Practice Problems

To reinforce your understanding, try solving these similar problems:

1. Divide 125.456 by 7 and round to the nearest hundredth.
2. Calculate 89.235 divided by 4, rounded to two decimal places.

3. Find the quotient of 45.6789 and 9, rounded to the nearest hundredth.

Why Is Rounding Important?

Rounding plays a crucial role in everyday life and various fields such as finance, engineering, and science. It simplifies numbers to make data easier to interpret and communicate. For example:

- Financial transactions often round to two decimal places.
- Scientific measurements are rounded to maintain consistency.
- Estimations involve rounding to make quick calculations manageable.

Summary: Find The Quotient Of 68.0052 And 12 Rounded To The Nearest Hundredth

To summarize:

- Divide 68.0052 by 12, which gives approximately 5.6661.
- Round this result to two decimal places: 5.67.
- The final answer is 5.67.

This process demonstrates the importance of precision and correct rounding in mathematics. Mastering these skills enhances your numerical literacy and prepares you for more complex calculations.

Conclusion

In conclusion, finding the quotient of 68.0052 divided by 12 and rounding to the nearest hundredth involves straightforward division followed by applying basic rounding rules. Using calculators for precision, verifying steps, and understanding the significance of decimal places are key to solving similar problems accurately. Whether for academic purposes or practical applications, mastering these skills will boost your confidence in handling real-world numerical challenges.

Remember, practice makes perfect. Regularly solving similar division and rounding problems will improve your speed and accuracy, making you proficient in basic arithmetic.

operations. Keep practicing, stay attentive to details, and you'll be able to confidently tackle any division problem with proper rounding in the future.

Frequently Asked Questions

What is the quotient of 68.0052 divided by 12 rounded to the nearest hundredth?

The quotient is approximately 5.67.

How do you round the result of $68.0052 \div 12$ to the nearest hundredth?

First, perform the division to get approximately 5.6661, then round to two decimal places, resulting in 5.67.

Why is rounding to the nearest hundredth important in division problems?

Rounding to the nearest hundredth provides a precise yet manageable number, making it easier to interpret and use in real-world contexts.

Can you show the step-by-step calculation for 68.0052 divided by 12?

Yes. $68.0052 \div 12 \approx 5.6661$. Rounded to the nearest hundredth, the answer is 5.67.

Is the rounded quotient 5.67 an exact value or an approximation?

It is an approximation, rounded to the nearest hundredth.

What tools can help verify the division and rounding of $68.0052 \div 12$?

You can use a calculator or mathematical software to perform division and rounding accurately.

Additional Resources

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In the world of mathematics, division is a fundamental operation that underpins countless applications—from everyday calculations to complex scientific equations. Today, we focus on a specific division problem: finding the quotient of 68.0052 divided by 12, then rounding the result to the nearest hundredth. While this may seem straightforward, understanding the process thoroughly enhances both accuracy and confidence in handling similar problems. This article will guide you through the step-by-step calculation, discuss the importance of rounding, and explore practical implications, all in a clear and accessible manner.

Understanding the Division Problem

At its core, the problem involves dividing a decimal number, 68.0052, by a whole number, 12. To ensure clarity, let's break down what this entails:

- Dividend: 68.0052 (the number being divided)
- Divisor: 12 (the number dividing the dividend)
- Quotient: The result of the division

The goal is to compute the quotient precisely and then round it to the nearest hundredth, which is two decimal places.

The Significance of Rounding to the Nearest Hundredth

Before diving into calculations, it's essential to understand why we round to the nearest hundredth and how this affects the precision of our answer.

- Why round?

Rounding simplifies numbers, making them easier to interpret and communicate, especially when dealing with measurements, financial data, or scientific results.

- What is the hundredth place?

The hundredth place is the second digit to the right of the decimal point. For example, in 3.1415, the hundredth digit is 4 (since 3.14).

- Impact of rounding

Rounding can introduce minor errors but generally provides a sufficiently accurate estimate for practical purposes.

Step-by-Step Calculation of the Quotient

Let's now perform the division operation step by step, ensuring clarity and accuracy.

Step 1: Convert the division problem into a manageable form

Dividing a decimal by a whole number can be simplified by removing the decimal point from the dividend through multiplication, provided we do the same to the divisor to maintain equivalence.

- The dividend: 68.0052
- The divisor: 12

Since the dividend has four decimal places, multiply both numbers by 10,000 to convert the dividend into a whole number:

- Multiply:
- 68.0052 by 10,000 $\rightarrow$ 680,052
- 12 by 10,000 $\rightarrow$ 120,000

Now, the problem becomes:

$$680,052 \div 120,000$$

Step 2: Perform the division

To find the quotient:

- Divide 680,052 by 120,000

Estimate:

- $120,000 \times 5 = 600,000$ (less than 680,052)
- $120,000 \times 6 = 720,000$ (more than 680,052)

Since 680,052 is between these two, the quotient is between 5 and 6.

Calculate more precisely:

- $680,052 \div 120,000 \approx 5.6671$ (using calculator or long division)

Alternatively, perform long division:

1. How many times does 120,000 go into 680,052?

- $120,000 \times 5 = 600,000$
- Subtract: $680,052 - 600,000 = 80,052$

2. Append decimal zeros to continue dividing:

- Bring down a zero: 80,052 becomes 800,520
- $120,000 \times 6 = 720,000$
- Subtract: $800,520 - 720,000 = 80,520$

3. Continue dividing to get more decimal places:

- Bring down another zero: 805,200
- $120,000 \times 6 = 720,000$
- Subtract: $805,200 - 720,000 = 85,200$

4. Continue further to refine the decimal:

- Bring down another zero: 852,000
- $120,000 \times 7 = 840,000$
- Subtract: $852,000 - 840,000 = 12,000$

Since the remainder is now 12,000, which is less than 120,000, we can stop here for the desired precision.

The approximate quotient is 5.6667 when rounded to four decimal places.

Step 3: Convert back to the original scale

Recall, we multiplied both numbers by 10,000 initially. To find the actual quotient in the original units, divide the result by 10,000:

- $5.6667 \div 1 = 5.6667$

Thus, the quotient of $68.0052 \div 12$ is approximately 5.6667.

Step 4: Round to the nearest hundredth

To round 5.6667 to the nearest hundredth:

- Look at the third decimal digit (6 in 5.6667).
- Since 6 is greater than or equal to 5, round the second decimal digit (6) up by 1.
- Result:
- $5.6667 \rightarrow 5.67$

Final answer: The quotient of 68.0052 divided by 12, rounded to the nearest hundredth, is 5.67.

Practical Implications and Applications

Understanding how to perform division with decimals and properly round results is vital across various fields:

- Finance: Calculating interest rates, loan payments, or currency conversions often require precise decimal handling and rounding.
- Science and Engineering: Measurements and calculations frequently involve decimals, with rounded results used for reporting and analysis.
- Education: Mastery of decimal division enhances overall numeracy, critical for problem-solving and logical reasoning.
- Data Analysis: Rounding data points ensures clarity and consistency, especially when presenting summaries or visualizations.

Common Pitfalls and Tips for Accurate Calculation

While the process appears straightforward, several common errors can occur:

- Misplacing decimal points: Ensure correct alignment when converting decimals to whole numbers.
- Incorrect rounding: Always examine the digit immediately after the desired decimal place to determine whether to round up or down.
- Ignoring significant figures: Rounding should respect the context of the data's precision.

Tips for accuracy:

- Use calculators for complex division to avoid arithmetic errors.
- Double-check the placement of decimal points after conversions.
- Follow standard rounding rules consistently.

Conclusion

The division of 68.0052 by 12, rounded to the nearest hundredth, yields 5.67. This exercise underscores the importance of meticulous calculation steps, understanding the role of rounding, and the ability to interpret decimal operations accurately. Whether applied to everyday tasks or professional scenarios, mastering such fundamental skills enhances mathematical confidence and precision. As you continue to refine your numerical abilities, remember that a clear understanding of each step ensures reliable results and effective communication of your findings.

In summary, through careful conversion, division, and rounding, we've demonstrated a comprehensive approach to solving decimal division problems—an essential skill that underpins many aspects of quantitative reasoning.

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