

***Middle School Level*36.36 Divided By 0.6 MUST GIVE STEP BY STEP!!!!**

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Understanding how to divide decimals can sometimes seem challenging for middle school students, but with a clear step-by-step approach, it becomes much easier. This guide will walk you through the process of dividing 36.36 by 0.6, providing detailed explanations suitable for middle school learners. Whether you're a student practicing math problems or a teacher preparing lessons, this comprehensive breakdown aims to clarify the concept of decimal division and help you build confidence in solving similar problems.

Introduction to Dividing Decimals

Before diving into the specific problem of dividing 36.36 by 0.6, let's review some key concepts about decimal division:

- What is division?

Division is splitting a number into equal parts or determining how many times one number fits into another.

- Decimals in division:

When dividing decimals, it's often easier to eliminate the decimal points by converting the divisor (the number you're dividing by) into a whole number. This makes the calculation straightforward.

- Why convert decimals to whole numbers?

Removing decimals simplifies the division process because standard long division algorithms work smoothly with whole numbers.

Step-by-Step Guide to Divide 36.36 by 0.6

Let's now apply these principles to our specific problem: dividing 36.36 by 0.6.

Step 1: Understand the problem

- The problem is: $36.36 \div 0.6$

- Our goal: Find out how many times 0.6 fits into 36.36.

Step 2: Convert the divisor (0.6) into a whole number

- Since dividing by 0.6 can be tricky, we make it easier by converting 0.6 into a whole number.
- To do this, identify how many decimal places are in 0.6:
- 0.6 has 1 decimal place.
- To eliminate the decimal, multiply both the dividend and the divisor by 10 (which shifts the decimal point one place to the right):
- $(36.36 \times 10 = 363.6)$
- $(0.6 \times 10 = 6)$
- Now, the problem becomes:

$$363.6 \div 6$$

Step 3: Deal with the new problem: $363.6 \div 6$

- Now, the division involves a decimal in the dividend but a whole number divisor.
- To simplify further, convert 363.6 into a whole number:
- 363.6 has 1 decimal place.
- Multiply both numbers by 10 again:
- $(363.6 \times 10 = 3636)$
- $(6 \times 10 = 60)$
- Now, the division problem becomes:

$$3636 \div 60$$

- This is a division of two whole numbers, which is easier to perform.

Step 4: Perform the division $3636 \div 60$

- Set up the long division:
- How many times does 60 go into 3636?
- To estimate:
- $60 \times 60 = 3600$, which is close to 3636.

- Therefore, 60 fits into 3636 approximately 60 times.

- Now, perform the actual division:

1. Divide 3636 by 60:

- $60 \times 60 = 3600$

- Subtract 3600 from 3636:

$3636 - 3600 = 36$

2. Since 36 is less than 60, add a decimal point and a zero to continue dividing:

- Bring down a zero, making it 360.

3. Divide 360 by 60:

- $60 \times 6 = 360$

4. Subtract:

- $360 - 360 = 0$

- So, the quotient is 60.6.

Step 5: Final answer

- The division yields:

$36.36 \div 0.6 = 60.6$

- Therefore, 36.36 divided by 0.6 equals 60.6.

Summary of the Steps

To summarize, here's a quick list of the steps:

1. Recognize the problem: $36.36 \div 0.6$.

2. Convert the divisor (0.6) into a whole number by multiplying both numerator and denominator by 10.

3. Adjust the dividend accordingly: 36.36 becomes 363.6.

4. Convert 363.6 into a whole number by multiplying both parts by 10 again, resulting in $3636 \div 60$.

5. Perform the division of 3636 by 60, which equals 60.6.

6. The final answer is 60.6.

Additional Tips for Dividing Decimals

- Always aim to convert the divisor into a whole number to simplify calculations.
- Remember to do the same to the dividend as you do to the divisor.
- Keep track of decimal places to ensure accurate calculations.
- Use long division if necessary, and write neatly to avoid errors.
- Practice with similar problems to build confidence.

Practice Problems to Master Decimal Division

Try solving these on your own after reading the steps:

1. $45.72 \div 0.8$
2. $12.5 \div 0.5$
3. $7.84 \div 0.4$
4. $123.45 \div 0.3$
5. $9.09 \div 0.09$

For each problem, follow the same steps: eliminate decimals in the divisor by multiplying both numbers by powers of 10, then perform the division.

Conclusion

Dividing decimals might seem complex at first, but with a systematic approach, it becomes straightforward. The key is to convert the divisor into a whole number, adjust the dividend accordingly, and then perform standard division. In our example of 36.36 divided by 0.6, we successfully found that the answer is 60.6 through detailed, step-by-step calculations. Practice this method with various problems to strengthen your understanding and become more confident in handling decimal division problems at the middle school level.

Remember, patience and practice are essential. Keep working through similar problems, and soon you'll master dividing decimals with ease!

Frequently Asked Questions

How do I divide 36.36 by 0.6 step by step?

To divide 36.36 by 0.6 step by step:

1. Remove the decimal from 0.6 by multiplying both numerator and denominator by 10:
 $36.36 \div 0.6 = (36.36 \times 10) \div (0.6 \times 10) = 363.6 \div 6.$
2. Now, divide 363.6 by 6:
 $6 \times 60 = 360$, subtract from 363.6 to get 3.6.
 $6 \times 0.6 = 3.6$, subtract to get 0.

3. So, $363.6 \div 6 = 60.6$.

Answer: $36.36 \div 0.6 = 60.6$.

Why do we multiply both numbers by 10 when dividing by a decimal like 0.6?

We multiply both numbers by 10 to eliminate the decimal point, making the division easier to perform as whole numbers. Since multiplying both the dividend and divisor by the same number doesn't change the quotient, it simplifies calculations.

What is the easiest way to divide a decimal by a decimal?

The easiest way is to convert the divisor to a whole number by multiplying both numbers by 10, 100, or 1000 as needed. Then, perform the division with whole numbers, and place the decimal point in the quotient accordingly.

Can I use a calculator to divide 36.36 by 0.6?

Yes, you can use a calculator for this division. Just enter $36.36 \div 0.6$ and get the result, which will be 60.6. Using a calculator makes the process quicker and reduces chances of errors.

How do I check if my division answer is correct?

You can check your division by multiplying the quotient by the divisor. If the result equals the original number, your answer is correct. For example, 60.6×0.6 should be close to 36.36.

What are some real-life examples of dividing decimals like 36.36 by 0.6?

Real-life examples include calculating prices, measurements, or distances. For instance, if you have 36.36 meters of fabric and want to cut pieces that are 0.6 meters each, dividing 36.36 by 0.6 tells you how many pieces you can get.

What should I remember when dividing decimals at middle school level?

Remember to eliminate the decimals by multiplying both numbers by the same power of 10, perform the division with whole numbers, and then place the decimal point in the answer correctly. Practice helps improve accuracy!

Additional Resources

36.36 Divided By 0.6 is a mathematical problem that often confuses students at the middle school level. Understanding how to divide decimals can be tricky at first, but with a clear step-by-step approach, anyone can master it. In this article, I will guide you through the entire process of dividing 36.36 by 0.6, explaining each step carefully and providing useful tips along the way.

Understanding the Problem

Before diving into the calculation, it's important to understand what the problem is asking. When you see 36.36 divided by 0.6, it means you are trying to find out how many times 0.6 fits into 36.36. The division problem looks like this:

$$36.36 \div 0.6$$

Your goal is to determine the quotient, which is the answer to this division.

Step 1: Recognize the Decimal Division

Dividing decimals directly can sometimes be confusing. The key is to convert the division problem into a simpler one involving whole numbers. This makes calculations easier and less prone to errors.

In this case, both numbers (36.36 and 0.6) are decimals. To simplify, we will eliminate the decimal point from the divisor (0.6) by multiplying both the divisor and dividend by a power of 10 that makes the divisor a whole number.

Why Multiply Both Numbers?

Multiplying both the numerator (dividend) and denominator (divisor) by the same number keeps the value of the division the same but simplifies the calculation. This is because:

$$(a \div b) = (a \times c) \div (b \times c)$$

where c is a number you multiply both a and b by.

Step 2: Convert the Divisor to a Whole Number

Since the divisor is 0.6, which has one decimal place, multiply both numbers by 10:

$$\begin{aligned} - 36.36 \times 10 &= 363.6 \\ - 0.6 \times 10 &= 6 \end{aligned}$$

Now, the division problem becomes:

$$363.6 \div 6$$

However, notice that 363.6 still has a decimal. To eliminate this, we can multiply both numbers again by 10:

$$\begin{aligned} - 363.6 \times 10 &= 3,636 \\ - 6 \times 10 &= 60 \end{aligned}$$

So, the problem is now:

$$3,636 \div 60$$

This is a division between whole numbers, which is much easier to handle.

Step 3: Simplify the Division of Whole Numbers

Now, we need to divide 3,636 by 60.

How to do this?

- First, see if 3,636 is divisible by 60 directly.
- Since $60 \times 60 = 3,600$, and 3,636 is close to 3,600, this suggests that the quotient is around 60.

Let's do a precise calculation:

- Divide 3,636 by 60.

Use long division or a calculator for accuracy.

Long division method:

- 60 goes into 3,636 how many times?

Step 1: Determine how many times 60 fits into the first few digits:

- $60 \times 60 = 3,600$
- Subtract 3,600 from 3,636:

$$3,636 - 3,600 = 36$$

- Now, since 36 is less than 60, it means we've completed the main division.
- So, the quotient so far is 60, with a remainder of 36.
- To get the decimal part, add a decimal point and zero:

Bring down a zero: 360

- $60 \times 6 = 360$
- Subtract 360 from 360:

$$360 - 360 = 0$$

Thus, the exact division is:

$$3,636 \div 60 = 60.6$$

Therefore, the result of the division is 60.6.

Step 4: Final Answer

Remember, this result corresponds to the original problem because we multiplied both numerator and denominator by 100 (after the initial step). The value hasn't changed, so:

$$36.36 \div 0.6 = 60.6$$

Final answer: 60.6

Summary of Steps

Here's a quick overview:

1. Recognize the division involves decimals.
2. Multiply both numbers by a power of 10 to make the divisor a whole number.
3. Simplify the division to whole numbers.
4. Divide using long division or calculator.
5. Convert back to the original scale to find the final answer.

Additional Tips and Tricks

- Remember to multiply both numbers equally to keep the problem equivalent.
- Use a calculator for quick and accurate results, especially if you're unsure about long division.
- Check your work by estimating: since 0.6 is roughly $\frac{1}{2}$, the answer should be around $36.36 \div 0.5 = 72$, which is close to our exact answer of 60.6.
- Practice with other decimals to become more comfortable with decimal division.

Pros and Cons of the Method

Pros:

- Simplifies complicated decimal division into straightforward whole number division.
- Reduces chances of making errors with decimal placement.
- Easy to understand once you grasp the concept of multiplying both numbers.

Cons:

- Requires multiple steps, which can be confusing at first.
- Might seem cumbersome for simple calculations if you're not familiar with the process.
- Needs careful handling of decimal points and place value.

Features of This Approach

- Step-by-step instructions make it easy for middle school students to follow.
- Visualize the process of converting decimals to whole numbers.

- Flexible for other similar problems, such as dividing larger or more complex decimals.

Conclusion

Dividing 36.36 by 0.6 may seem intimidating at first, but by following the step-by-step process of converting decimals to whole numbers, the task becomes much easier. Remember to multiply both numbers by the same power of 10, perform the division with whole numbers, and then interpret your answer in the original context. With practice, you'll become confident in dividing decimals accurately and quickly, a skill that will serve you well in many math problems. Keep practicing with different numbers, and soon you'll be able to handle any decimal division problem with ease!

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