

How Do You Write 1 3/4 As A Decimal Show Your Work!

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Converting mixed numbers such as 1 3/4 into decimal form is a fundamental skill in mathematics that helps in simplifying calculations and understanding numerical values more intuitively. Whether you're a student learning basic arithmetic or someone who needs to convert fractions for practical purposes, understanding the step-by-step process is essential. In this article, we will explore how to write 1 3/4 as a decimal, show detailed work, and provide tips to make the process easier.

Understanding the Basics: What Is a Mixed Number?

Before diving into the conversion process, it's important to clarify what a mixed number is.

A mixed number combines a whole number and a fraction. For example, in 1 3/4:

- The whole number part is 1
- The fractional part is 3/4

Mixed numbers are often used because they are more convenient than improper fractions in everyday contexts. However, for calculations, converting them into decimal form can be more straightforward.

Step-by-Step Guide to Converting 1 3/4 to a Decimal

Converting the mixed number 1 3/4 into a decimal involves a few clear steps. Let's explore each one thoroughly.

Step 1: Separate the Whole Number and Fraction

Identify the whole part and the fractional part.

- Whole number: 1
- Fraction: 3/4

This separation helps to convert each part individually or to convert the entire number at once.

Step 2: Convert the Fraction 3/4 to a Decimal

The main conversion challenge is transforming 3/4 into a decimal.

To do this, divide the numerator (3) by the denominator (4).

Mathematically:

$\lfloor 3 \div 4 \rfloor$

Performing the division:

- 4 goes into 3 zero times, so place a decimal point after 3 and add zeros as needed.
- 4 goes into 30 (after adding a zero) 7 times because $4 \times 7 = 28$.
- Subtract 28 from 30, leaving a remainder of 2.
- Bring down another zero, making it 20.
- 4 goes into 20 exactly 5 times because $4 \times 5 = 20$.
- Subtract 20 from 20, leaving a remainder of 0.

Therefore,

$$\lfloor 3 \div 4 = 0.75 \rfloor$$

Tip: You can also remember common fractions:

- $1/2 = 0.5$
- $1/4 = 0.25$
- $3/4 = 0.75$

Step 3: Combine the Whole Number and Decimal Part

Now, add the decimal equivalent of the fractional part to the whole number:

$$\lfloor 1 + 0.75 = 1.75 \rfloor$$

Thus, $1 \frac{3}{4}$ as a decimal is 1.75.

Alternative Method: Converting the Entire Mixed Number as an Improper Fraction

Another approach involves converting the mixed number into an improper fraction first, then into a decimal.

Step 1: Convert $1 \frac{3}{4}$ to an Improper Fraction

Recall that:

$$\lfloor \text{Mixed Number} = (\text{Whole Number} \times \text{Denominator}) + \text{Numerator} \rfloor$$

Applying this:

$$\lfloor (1 \times 4) + 3 = 4 + 3 = 7 \rfloor$$

So,

$$\lfloor 1 \frac{3}{4} = \frac{7}{4} \rfloor$$

Step 2: Divide the Numerator by the Denominator

Now, divide 7 by 4:

$7 \div 4$

Performing the division:

- 4 goes into 7 once (1) with a remainder of 3.
- Add a decimal point and zeros: 70.
- 4 goes into 70 sixteen times (16) because $4 \times 16 = 64$.
- Subtract 64 from 70 leaves 6.
- Bring down a zero: 60.
- 4 goes into 60 fifteen times (15) because $4 \times 15 = 60$.

Putting it together:

$7 \div 4 = 1.75$

Again, the decimal form is 1.75.

Quick Tips for Converting Fractions to Decimals

To make the process easier in general, consider these tips:

- **Memorize common fractions and their decimal equivalents:** $1/2 = 0.5$, $1/4 = 0.25$, $3/4 = 0.75$, $1/8 = 0.125$.
- **Use long division:** When in doubt, perform the division of numerator by denominator.
- **Use a calculator:** For quick conversions, dividing numerator by denominator on a calculator is fast and accurate.
- **Practice converting mixed numbers:** The more you practice, the more intuitive the process becomes.

Real-Life Applications of Converting Mixed Numbers to Decimals

Understanding how to convert mixed numbers to decimals isn't just an academic exercise; it has practical uses in many areas:

1. Financial Calculations

When dealing with money, decimals are standard. For example, if a recipe calls for $1 \frac{3}{4}$ cups of sugar, converting that to 1.75 cups can be helpful for measuring.

2. Measurement and Construction

Architects and builders often convert fractional measurements into decimals for precise calculations.

3. Data Analysis and Science

In scientific data, measurements are often recorded in decimal form for consistency and easier analysis.

Practice Problems to Master the Conversion

Test your understanding with these practice problems:

1. Convert $2 \frac{1}{2}$ into a decimal.
2. Express $3 \frac{3}{8}$ as a decimal.
3. Write $4 \frac{2}{5}$ as a decimal.
4. Convert $5 \frac{7}{8}$ into decimal form.

Answers:

1. $2 \frac{1}{2} = 2 + 0.5 = 2.5$
2. $3 \frac{3}{8} = 3 + 0.375 = 3.375$
3. $4 \frac{2}{5} = 4 + 0.4 = 4.4$
4. $5 \frac{7}{8} = 5 + 0.875 = 5.875$

Summary: Converting $1 \frac{3}{4}$ to a Decimal

To summarize, converting $1 \frac{3}{4}$ into a decimal involves either dividing the numerator of the fractional part by its denominator or converting the mixed number into an improper fraction and then performing the division. The final answer in both methods is 1.75. Remember to understand each step, practice regularly, and utilize tools like calculators when necessary to become proficient.

Mastering this skill enhances your ability to work with fractions and decimals seamlessly, opening

doors to more advanced math concepts and practical applications in everyday life.

Frequently Asked Questions

How do you convert $1 \frac{3}{4}$ to a decimal?

First, convert the mixed number to an improper fraction: $1 \frac{3}{4} = (1 \times 4 + 3)/4 = 7/4$. Then, divide the numerator by the denominator: $7 \div 4 = 1.75$. So, $1 \frac{3}{4}$ as a decimal is 1.75.

What is the step-by-step process to write $1 \frac{3}{4}$ as a decimal?

Step 1: Convert the mixed number to an improper fraction ($7/4$). Step 2: Divide the numerator (7) by the denominator (4): $7 \div 4 = 1.75$. Therefore, $1 \frac{3}{4}$ equals 1.75 as a decimal.

Why do we convert mixed numbers to decimals by dividing?

Dividing the numerator by the denominator of an improper fraction provides the decimal equivalent of the fraction. This process allows us to express mixed numbers as decimals for easier calculations.

Can you show the work for converting $1 \frac{3}{4}$ to a decimal?

Yes. Convert $1 \frac{3}{4}$ to an improper fraction: $7/4$. Then divide 7 by 4: $7 \div 4 = 1.75$. So, $1 \frac{3}{4}$ as a decimal is 1.75.

Is $1 \frac{3}{4}$ equal to 1.75 as a decimal?

Yes, $1 \frac{3}{4}$ is equal to 1.75 when written as a decimal.

What is the importance of converting mixed numbers to decimals?

Converting mixed numbers to decimals helps in performing addition, subtraction, multiplication, and division more easily, especially in real-world measurements and calculations.

Are there other methods to convert $1 \frac{3}{4}$ to a decimal?

The primary method is dividing the numerator of the improper fraction by its denominator. Alternatively, you can recognize that $3/4$ is 0.75, so $1 + 0.75 = 1.75$.

How do I verify that 1.75 is the correct decimal for $1 \frac{3}{4}$?

You can verify by converting 1.75 back to a fraction: $1.75 = 1 + 0.75 = 1 + (3/4) = 1 \frac{3}{4}$, confirming that 1.75 is correct.

Additional Resources

How Do You Write $1 \frac{3}{4}$ As A Decimal Show Your Work!

Understanding how to convert mixed numbers like $1 \frac{3}{4}$ into decimals is a fundamental skill that bridges the gap between fractions and decimal representations. This process is vital in various mathematical applications, from basic arithmetic to more advanced calculations in science and engineering. When approaching this problem, it's important to understand the steps involved, the reasoning behind each step, and how to verify your work. In this article, we will explore how to convert $1 \frac{3}{4}$ to a decimal comprehensively, breaking down each part of the process, showing detailed work, and discussing tips and common pitfalls along the way.

Understanding the Components of the Problem

Before diving into the conversion process, it's essential to understand what the problem entails. The expression $1 \frac{3}{4}$ is a mixed number, which combines a whole number (1) with a fraction ($\frac{3}{4}$). To convert this into a decimal, we need to:

- Convert the fractional part ($\frac{3}{4}$) into a decimal.
- Add this decimal to the whole number (1).

This process involves two main steps: converting the fraction to a decimal and then performing addition.

Step-by-Step Guide to Converting $1 \frac{3}{4}$ to a Decimal

Step 1: Convert the Fraction $\frac{3}{4}$ into a Decimal

The first step is to convert the fractional part, $\frac{3}{4}$, into a decimal. There are multiple methods to do this:

Method A: Long Division

- Divide the numerator (3) by the denominator (4).
- Set up the division: $3 \div 4$.

Performing the division:

- 4 does not go into 3, so add a decimal point and a zero to make it 30.
- Now, 4 goes into 30 seven times ($7 \times 4 = 28$).
- Subtract 28 from 30, leaving a remainder of 2.
- Bring down another zero to make it 20.

- 4 goes into 20 exactly five times ($5 \times 4 = 20$).
- Subtract 20 from 20, no remainder.

Answer:

- The decimal equivalent of $3/4$ is 0.75.

Method B: Recognize common fractions

- Remember common fractions and their decimal equivalents:
- $1/2 = 0.5$
- $1/3 \approx 0.333...$
- $3/4 = 0.75$

Since $3/4$ is a common fraction, recognizing its decimal equivalent directly saves time.

Step 2: Add the Whole Number to the Decimal

Now, combine the converted fractional part with the whole number:

- Whole number: 1
- Fraction as decimal: 0.75

Perform the addition:

$$1 + 0.75 = 1.75$$

Result:

- Therefore, $1 \frac{3}{4} = 1.75$ as a decimal.

Show Your Work Clearly: Summary of the Conversion

To clearly show the work, you might write:

...

$$\begin{aligned} 1 \frac{3}{4} &= 1 + \frac{3}{4} \\ &= 1 + 0.75 \\ &= 1.75 \end{aligned}$$

...

This step-by-step work makes it transparent how the mixed number was transformed into its decimal equivalent.

Additional Tips for Conversion

- Use known conversions: Memorizing common fractions and their decimal equivalents can speed up the process.
- Check your work: Always verify by converting your decimal back to a fraction or mixed number to ensure accuracy.
- Practice with different fractions: The more you practice converting various fractions, the more intuitive the process becomes.

Common Mistakes and How to Avoid Them

- Forgetting to convert the fractional part before addition: Always convert the fraction first, then add.
- Incorrect division: Double-check long division or use a calculator for confirmation.
- Misreading mixed numbers: Ensure you separate the whole number and fractional parts correctly before conversion.
- Rounding errors: When dealing with non-terminating decimals, decide on an appropriate number of decimal places.

Features and Advantages of Converting Fractions to Decimals

- Simplifies calculations: Decimals are easier to work with in many contexts, such as addition, subtraction, multiplication, and division.
- Better understanding of numerical values: Decimals provide a clearer sense of magnitude.
- Universal format: Decimals are standard in most scientific and financial calculations.

Features:

- Easy to convert with basic division.
- Recognizable and widely used in various applications.
- Can be rounded to desired precision.

Summary and Final Thoughts

Converting a mixed number like $1 \frac{3}{4}$ into a decimal involves understanding the fractional component, converting it correctly, and then combining it with the whole number. The key steps are to convert $\frac{3}{4}$ into 0.75 through long division or memorization and then add it to 1, resulting in 1.75. Showing your work clearly helps reinforce understanding and ensures accuracy, especially in educational settings or when double-checking your calculations.

Practicing these conversions enhances your number sense, making it easier to switch between fractions and decimals as needed. Remember to verify your work by converting back if necessary, and keep practicing with different fractions to build confidence.

By mastering the process of converting mixed numbers to decimals, you equip yourself with a valuable mathematical skill that will serve you well in academics, professional tasks, and everyday calculations. Whether in financial contexts, measurements, or data analysis, the ability to confidently show your work and understand conversions is a fundamental part of mathematical literacy.

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