

# Understanding Decimal Addition and Subtraction

Decimals are everywhere in our daily lives! From the money we use to buying food and measuring ingredients, decimals help us handle all sorts of tasks. In this lesson, we will learn how to add and subtract decimals up to the thousandths place, which means we will work with numbers that have three digits after the decimal point.

## What Are Decimals?

A decimal is a way of showing numbers that are less than one. The numbers after the decimal point are separated by place values:

- **Tenths (0.1)**
- **Hundredths (0.01)**
- **Thousandths (0.001)**

For example, **3.45** means **3** whole units and **45 hundredths** of a unit. If we had **3.456**, it would mean **3** whole units, **45 hundredths**, and **6 thousandths**.

## Adding Decimals

When adding decimals, it's important to **line up the decimal points**. This ensures that each digit is in the correct place. Here's how you add decimals:

### Example 1:

Add **12.345 + 4.567**

Step 1: Line up the decimals like this:

$$\begin{array}{r} 12.345 \\ + 4.567 \\ \hline \end{array}$$

Step 2: Add the digits starting from the rightmost column (thousandths).

Step 3: If needed, **carry over** numbers just like adding whole numbers.

The result is **16.912**.

## Subtracting Decimals

Subtracting decimals is similar to adding them. The key is still to **line up the decimal points**. Sometimes, you will need to **borrow** when subtracting.

### Example 2:

Subtract **8.23 - 5.67**

Step 1: Line up the decimals.

$$\begin{array}{r} 8.230 \\ - 5.670 \\ \hline \end{array}$$

Step 2: Subtract each column from right to left.  
The result is **2.560**.

### Practical Application: Using Decimals in Everyday Life

#### 1. Money Transactions:

When you shop, you often add and subtract decimals. Let's say you buy a toy for **\$4.75** and pay with a **\$10 bill**. To find out how much change you'll get, you subtract:

$$\begin{array}{r} 10.00 \\ - 4.75 \\ \hline 5.25 \end{array}$$

You will get **\$5.25** back.

#### 2. Measurement Conversions:

Decimals are also used when measuring. If you are measuring ingredients for a recipe and need to subtract **1.25 cups** of flour from **3.50 cups**, you would do this:

$$\begin{array}{r} 3.50 \\ - 1.25 \\ \hline 2.25 \end{array}$$

This shows you need **2.25 cups** of flour.

### Why Is This Important?

Decimals help us in many areas of life. Whether we are shopping, cooking, or measuring, understanding how to add and subtract decimals makes these tasks easier and more accurate.

By learning how to work with decimals, you'll become better at managing your money and solving problems in real life. Keep practicing, and soon you'll be a decimal expert!

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### References:

- National Council of Teachers of Mathematics (NCTM). (2014). *Principles and Standards for School Mathematics*.
- California Department of Education. (2020). *Mathematics Framework for California Public Schools*.