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Adding and Subtracting Decimals: Examples & Word Problems

In math, we sometimes have to deal with decimal numbers instead of our nice whole numbers. Watch this video lesson to learn the one thing that you have to take into consideration when adding and subtracting decimals.

Adding Decimals

Adding and subtracting **decimal numbers**, numbers with a decimal point, isn't all that different from adding and subtracting whole numbers. Think about the steps you take to add and subtract whole numbers. Say you want to add 324 to 23. What do you do?

If you were doing it by hand, you would rewrite the problem so that your numbers are stacked on top of each other. You write the numbers so that the last digit is lined up with each other. For 324 + 23, you write it so that the 4 is on top of the 3. Then the other numbers follow suit.

You also have a line underneath the 23 and a + sign to the left of the 23. You go ahead and add the numbers digit-by-digit, starting from the right and going to the left. If any two digits add up to 10 or more, you carry the digit that is in the tens spot. So first we add 4 + 3 to get 7. We write the 7 directly underneath the 4 and the 3 under the line. And we continue until we reach the last digit. Since there is no number underneath the 3 in 324, we can write a 0 as a placeholder and to let us know that the value is 0. Our answer here is 347.

To add decimals, we follow the same process except now when we line up our numbers, we use the decimal point as our point of reference instead of our last digit. For example, to add 12.3 to 0.81, we write the numbers stacked on top of each other, lining up the numbers according to the decimal point.

$$\begin{array}{r} 12.3 \\ +0.81 \\ \hline \end{array}$$

$$\begin{array}{r} 324 \\ +23 \\ \hline 347 \end{array}$$

Just like we can write 0s as placeholders when we add whole numbers, we can do the same thing when adding decimals. We notice that there is no number above the 1, so we can write a 0 there as a placeholder and to let us know that the value of this spot is 0. We then can proceed with the addition like we usually do. When we get to the decimal point, we also write the decimal point in our answer directly underneath.

We begin with 0 + 1 to get 1. Then we have 3 + 8, which is 11. Because this number is 10 or more, we carry the digit to the tens spot, the 1, and write the digit in the ones spot in the answer area. We write 1 down and carry the 1 over to the 2 + 0 so that we are adding an additional 1 to this spot.

So 2 + 0 becomes 2 + 1 and we get 3. Because we passed the decimal point, we make sure we write this decimal point in our answer between the 3 and the 1. Next, we have just a single 1. There is no number underneath, so it is a 0. 1 + 0 is 1. Our answer is 13.11.

Example

Let's try a problem. Our problem is telling us that Sarah is at the store and wants to purchase two candies. The large candy costs $3.14 and the small candy costs $0.34. How much is the total?

$$\begin{array}{r} 12.3 \\ +0.81 \\ \hline 13.11 \end{array}$$

To answer this problem, we need to add 3.14 to 0.34. To do that, we rewrite the problem so that the numbers are stacked on top of each other with the decimal point lined up. We can write in any 0s that we need for placeholders if needed. Then we go ahead and add the digits starting from the right and working our way to the left. We have 4 + 4 = 8. 1 + 3 = 4. Decimal point. 3 + 0 = 3. Our answer is 3.48.

Subtracting Decimals

Subtracting decimals, just like adding decimals, is similar to subtracting whole numbers. Just like adding decimals, the only difference is that we line up according to the decimal point instead of the last digit. Just like when we subtract whole numbers, we also write the numbers stacked on top of each other with the number we are subtracting on the bottom.

Say we are subtracting 0.36 from 0.84, 0.84 - 0.36. We write the numbers stacked on top of each other with the 0.36 on the bottom. We don't need any 0 placeholders. We then proceed to subtract the digits starting from the right and working our way to the left. Just like when working with whole numbers, if the digit we are subtracting from is less than the digit we are subtracting, we then take 1 away from the digit to our left so that we can add 10 to the digit we are subtracting from.

In our current problem, we start by subtracting 6 from 4. Oh, wait. We can't do that. 4 is smaller than 6. So we take 1 from the digit to the left, the 8, so we can turn the 4 into 14. 8 then becomes 7. Now we can do 14 - 6, which is 8. Next comes 7 - 3, which is 4. Decimal point. And we are done. Our answer is 0.48.

Subtraction Example

Let's look at a problem. John, the pie-man, is really into math and decimals. He is challenging everybody that comes into his bakery with a little math problem. He says 'if you can tell me how many pies are left when you subtract 2.275 from 5.775, then you get that many pies for free.'

To answer his problem, we need to subtract 2.275 from 5.775, 5.775 - 2.275. We rewrite the problem so that the numbers are stacked with the 2.275 on the bottom. We then proceed to subtract the numbers digit by digit from right to left. We get 5 - 5, which equals 0, 7 - 7, which equals 0, 7 - 2 equals 5, decimal point, and finally, 5 - 2, which equals 3. Our final answer is 3.5. How many pies is that? Three and a half pies! So we get 3 and a half pies for free! Yum!

Lesson Summary

Let's review what we've learned now. We've learned that adding and subtracting **decimal numbers**, numbers with a decimal point, is just like adding and subtracting whole numbers. The only difference is that we line up the numbers according to the decimal point. For addition, it doesn't matter which number goes on the bottom. For subtraction, the number we are subtracting goes on the bottom. We then work our way from the right to the left.

For addition, if we get 10 or more after adding two digits, we then carry the number in the tens place over to the digit to the left. For subtraction, if the digit we are subtracting is more than the digit we are subtracting from, we take 1 from the digit to the left in the top number and add 10 to the current digit we are subtracting from.

Learning Outcomes

Once you are done reviewing this lesson, you could:

- Understand the necessity of lining up numbers according to the placement of the decimal point
- Successfully add or subtract numbers containing decimals
- Calculate the answers to word problems