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What is a Decimal Place Value?

In this video lesson, you will see how a decimal, a simple dot, can change the place value of all the digits in a number. You will also learn how to read decimals using place values.

Decimals

Before we can talk about decimal place values, we need to quickly review what a decimal is. **Decimals** are numbers with one visible point or dot somewhere in the number. This point is called the **decimal point**.

We actually see them everywhere around us, especially when we go shopping. What do we see on most everything we purchase? Well, we see a price tag. What kinds of numbers do you most often see on price tags? That's right! You see decimals! You see things like 6.99, 1.99, 0.99 and so on.

What Is a Place Value?

All those numbers you see on price tags and every other number you see and encounter must follow the rules of place values. What exactly is a place value? Well, a **place value** tells you the location of each digit in a number. The number 699, for example, has a 9 in the units place, a 9 in the tens place and a 6 in the hundreds place. All numbers follow the same place value naming criteria.

The number 211 has a 1 in the units place, a 1 in the tens place and a 2 in the hundreds place. The number 423 has a 3 in the units place, a 2 in the tens place and a 4 in the hundreds place. Notice how the tens place is always the second digit to the left and that the hundreds place is always the third digit to the left. Believe it or not, you already know most of the place values since you use them to count. Look at this large number broken down into its place values. The number is 123,456.

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Units
1	2	3	4	5	6

How would you say this number? Yes, you would say one hundred twenty-three thousand four hundred and fifty-six. Let's break this down into its place values. While we read from the left to the right, we will read our place values from the right to the left, in the opposite direction. We have 6 units, 5 tens, 4 hundreds, 3 thousands, 2 ten thousands and 1 hundred thousand. If you were asked how many hundreds there are in 123,456, you would answer 4 because there are 4 hundreds in that number.

You can think of the number as an addition problem. 123,456 is the same as 100,000, plus 20,000, plus 3,000, plus 400, plus 50, plus 6. Just like our place values told us, we have 1 hundred thousand, 2 ten thousands, 3 thousands, 4 hundreds, 5 tens and 6 units.

Where the Decimal Is Matters

When you add a decimal point into the mix, the location of the decimal point now determines your place values. Your decimal point tells you where to begin counting. The decimal number 6.99 has a 6 in the units place. The units place value is always the first number to the left of the decimal. To count your place values to the right of the decimal, you start from the left and go to the right.

So essentially, to count place values, you always start from the decimal and work your way out. Remember that every number has a decimal, even if none is shown. The numbers 211 and 423 both have a decimal point at the end, but we don't write it or show it because there are no numbers after it.

When you have a decimal, the place values will look like this:

Units	.	Tenths	Hundredths	Thousandths	Ten Thousandths	Hundred Thousandths
1	.	2	3	4	5	6

Notice here that you begin with tenths when you go the right of the decimal point and that you begin with the units when you go to the left. We know what tens, hundreds and thousands mean, but what about tenths, hundredths and thousandths? What do they mean? A tenth means one tenth or 1/10. In decimal form, it is 0.1. Notice the position of the 1. It's in the tenths place. 'Hundredth' means a hundredth or 1/100. In decimal form, it is 0.01.

Notice again the position of the 1. Where is it at? That's right, in the hundredths place. As we continue to the right, the numbers will continue to get smaller, with each step being 10 times smaller than the one before. Going to the left, each place value is bigger than the previous by 10 times. If you wanted to tell someone how many tenths a certain decimal number has, you would find the location of that place value and tell him or her the number that's there. For the number 1.23456, there are 2 tenths.

Like regular numbers, you can also think of decimal numbers as addition problems. The only difference would be that your last addition is a fraction of everything after the decimal. You can think of 0.7 as 0 plus 7/10. We are dividing by 10 because that's what the tenth place tells us to do.

If we have 1.23, we can rewrite it as 1 plus 23/100 since the hundredths place tells us to divide by 100. What about a number like 1.234? How would you write that? Yes, you can write that as 1 plus 234/1000 since the last place value is the thousandths place, which is telling us to divide by a thousand.

Reading Decimals

When you read decimals out loud, you will use the place values. The number 0.7 would read as seven tenths. The number 1.23 would read as one point twenty three hundredths. Like regular numbers, you also read decimal numbers from the left to the right. So, when you have a decimal number, your end word will be the last place value that you reach.

Lesson Summary

To review, **decimals** are numbers with a point somewhere in the number. That point is called a **decimal point**. The **place values** are counted from the decimal point. Going to the left, they are units, tens, hundreds, thousands, ten thousands, hundred thousands and so on. Going to the right, they are tenths, hundredths, thousandths, ten thousandths, hundred thousandths and so on.

Each place value is 10 times bigger than the place value to its right or 10 times smaller than the place value to its left. When you are looking at any number, going to the right means your numbers are getting smaller, and going to the left means your numbers are getting bigger. When you read numbers, you are actually basing it off their place values.

Learning Outcomes

Upon completing this lesson, you will be able to:

- Define decimals and decimal points
- Identify place values to either side of a decimal point
- Read decimals out loud