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Converting Decimals to Mixed Numbers

After watching this video lesson, you should be able to convert easily between decimals and mixed numbers. Learn what kinds of decimals you can and cannot convert to a mixed number.

Decimals

Decimals, numbers with a decimal point in them, are used in the world all around us. The biggest example we have of decimals in use in the world around us is that of price tags. Just go to your favorite store and look at the prices. What do you see? You will most likely see your prices in the form of a decimal number, letting you know how much your item costs. You might see 45.99, which tells you that this item costs forty-five dollars and ninety-nine cents.

Mixed Numbers

Mixed numbers, numbers consisting of a whole number plus a fractional part, are also used in the world around us. Open up any cookbook and you will see mixed numbers. You might see a recipe for bread calling for 2 3/4 cups of flour. This is telling you that you need two cups plus three-quarters of a cup of flour to make this bread.

Converting

Now, did you know that you can easily convert between decimals and mixed numbers? This is what we will be doing in this video lesson. While most decimals can be converted into a mixed number, there are just a few decimals that cannot be converted. Which ones are they? They are the decimals that don't end and don't repeat. For example, the number pi is a decimal that never ends and never repeats. It begins with 3.14159 ... and keeps on going and going and going.

But for all the other decimals that do end, we can easily convert them to a mixed number. For example, to convert the decimal 4.1 to a mixed number, we first write down the number in front of the decimal point, the 4. Then we look at how many spaces we have after the decimal. We write the number after the decimal point in the numerator. Then, in the denominator, we write a 1 followed

by zeroes.

The number of zeroes we write depends on the number of spaces we have after the decimal point. In our example, 4.1, we have one space after the decimal point. This tells us that we will write one zero after our 1 in the denominator. Our mixed number is 4 1/10. If we are able to simplify our fraction further, then we go ahead and do that. If not, then we are done. We will save converting repeating decimals into fractions for another lesson.

Converting a mixed number to a decimal is very straightforward. For example, to convert 3 1/2 to a decimal, we first write the whole number followed by a decimal point. Then we take our fraction and divide it. 1/2 equals .5. This gives us the numbers that come after the decimal point. So, 3 1/2 in decimal form is 3.5.

Examples

Let's look at a couple of examples. Convert 7.125 to a mixed number. We begin by first writing out the number in front of the decimal point. We write 7. Then, for our fraction, we look at how many spaces we have after the decimal point. We have three. So, that means our fraction is 125/1000. Our mixed number is 7 125/1000. Is this our final answer, though? No, because 125/1000 can be simplified. We can divide both the numerator and denominator by the same number. Both can be divided by 125. Doing this, our fraction part simplifies to 1/8. So, our final answer is 7 1/8.

One more example. Convert 4 1/4 to a decimal. We write out the whole number followed by a decimal point. Then we go ahead and divide our fraction part. 1/4 calculates into .25. So, my decimal is 4.25. And I am done!

Lesson Summary

Let's review what we've learned. **Decimals** are numbers with a decimal point in them. **Mixed numbers** are numbers consisting of a whole number plus a fractional part. We can easily convert them. The only kinds of decimals that we cannot convert into a mixed number are decimals that don't end and never repeat. All others can be converted to a mixed number or fraction.

To convert a decimal that ends into a mixed number, we first write the number in front of the decimal point. Then, for the fraction part, we look at the part after the decimal point. We write out the numbers after the decimal point in our numerator. Our denominator is 1 followed by zeroes. The number of zeroes is equal to the number of spaces we have after the decimal point. If we can simplify our fraction further, we go ahead and do so. Otherwise, we are done.

To convert a mixed number into a decimal, we first write out the whole number followed by a decimal. Then we divide the fraction part to find out the numbers that go after the decimal.

Learning Outcomes

Following this lesson, you should have the ability to:

- Define decimal and mixed number
- Recall which decimals cannot be converted into a mixed number
- Convert a decimal to a mixed number and a mixed number to a decimal