Homework Help
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Grades 4-5: Multiplying & Dividing Using a Place Value Chart

- A **place value chart** is a way to **show how numbers break down into the ones place, tens place, hundreds place, and so on**. The chart helps show that **numbers go up one place value when they are multiplied by ten and go down one place value when divided by ten**.
- Instead of thinking about moving the decimal place to the right (multiplying by ten) or to the left (dividing by ten), we think about **the *numbers* moving to the left (getting bigger when multiplied) or right (getting smaller when divided)**.
- Here is how we can use the chart to model the number **253.8.**

Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths
	2	5	3	.	8	

Now, let's use the place value chart to **multiply 253.8 x 10**

1) We start by modeling 253.8 as shown above.
2) We **move each digit one place value to the left to show that we are multiplying by ten**. This makes sense because 10 ones equal 1 ten, 10 tens equal 1 hundred, and so on.
3) Instead of 8 tenths, we now have 80 tenths, which equals 8 ones. We have 30 ones, which equals 3 tens. We have 50 tens, which we can think of as 5 hundreds, and we have 20 hundreds, which we can think of as 2 thousands.
4) The final answer is **2,538**. We can include the decimal in our answer, but we don't have to since there are 0 tenths, hundredths, and so on.

Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths
	2 x 10	5 x 10	3 x 10	. x 10	8	
2	5	3	8	.	0	

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Grades 4-5: Dividing Using a Place Value Chart

Now, let's use the place value chart to **divide 253.8 ÷ 10.**

1) We start by modeling 253.8 as shown above.
2) We **move each digit one place value to the right to show that we are dividing by ten**. This makes sense because 100 ÷ 10 = 10, 10 ÷ 10 = 1, 1 ÷ 10 = 1/10, and so on.
3) Instead of 8 tenths, which can also be thought of as 80 hundredths, we now have 8 hundredths (80 ÷ 10 = 8). We have 3 tenths instead of 3 ones. We have 5 ones instead of 5 tens, and we have 2 tens instead of 2 hundreds. In other words, **each digit from the original number has shifted one place to the right, or one place value down**.
4) The final answer is **25.38.** We have to include the decimal point in our answer this time since we have 3 tenths and 8 hundredths.

Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths
	2 ÷ 10	5 ÷ 10	3	.	8 ÷ 10	
		2	5	.	3	8

For More on This Topic: //www.khanacademy.org/math/pre-algebra/pre-algebra-arith-prop/pre-algebra-place-value/v/place-value-when-multiplying-and-dividing-by-10