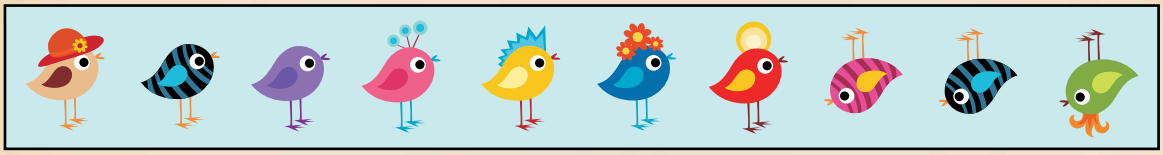
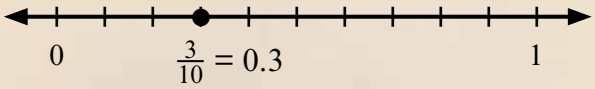
Finding a Place for Decimals

Look at the birds. Some birds are upside down. What fraction is upside down?



Basic Facts

We use a system of numbers. The system is the decimal system. It is based on groups of ten. And it is based on multiples of ten. These can be hundreds. They can be thousands. They can be more! Look at the birds. Three out of the 10 are upside down. How would you write the fraction? It would be $\frac{3}{10}$. Write it as a decimal. It would be 0.3. You would read it as "three-tenths."



Place value is the value of a digit. It is based on where it falls. Think of 27.3. The 2 is in the tens place. That means its value is 20. The 7 is in the ones place. Its value is 7. The 3 has a value based on its place. The 3 is in the tenths place. That means its value is 0.3. We read it as "three-tenths." Look at a big number. Look at 827.345. All the digits have their own place value.

Eight hundred twenty-seven and three hundred forty-five thousandths

8	**2**	**7**	**.**	**3**	**4**	**5**
hundreds	tens	ones		tenths	hundredths	thousandths

The 8 is in the hundreds place. It has a value of 800.

The 2 is in the tens place. It has a value of 20.

The 7 is in the ones place. It has a value of 7.

The 3 is in the tenths place. It has a value of 0.3. That is three-tenths.

The 4 is in the hundredths place. It has a value of 0.04. That is four-hundredths.

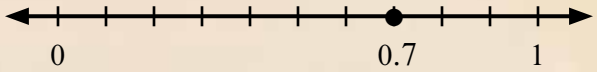
The 5 is in the thousandths place. It has a value of 0.005. That is five-thousandths.

The value is 800 + 20 + 7 + 0.3 + 0.04 + 0.005. That equals 827.345.

Identifying Place Value

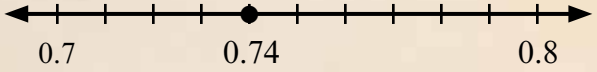
thousands	hundreds	tens	ones	•	tenths	hundredths	thousandths	ten-thousandths

See the number line. It shows 0.7.



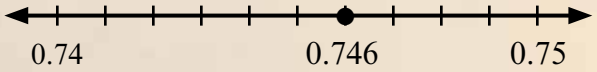
It is between the zero and the one. We read 0.7 as "seven-tenths." The 7 is in the tenths place.

See the number line. It shows 0.74.



It is between the 0.7 and the 0.8. We read this as "seventy-four hundredths." The 4 is in the hundredths place.

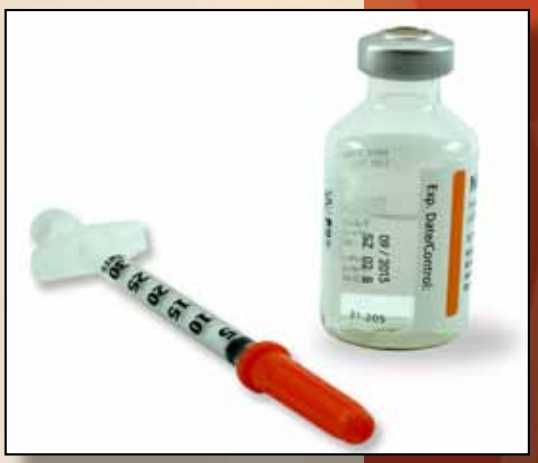
See the number line. It shows 0.746.



It is between the 0.74 and 0.75. We read it as "seven hundred forty-six thousandths." The 6 is in the thousandths place.

Place Value of Decimals in Our Daily Lives

Has your doctor given you a shot? Some people need shots when they get sick. Some even have to give themselves shots. The amount of medicine they need can change. They might need 20 units. They might need 0.5 units. They might need 0.025 units. People who need shots need to know about decimals. It is the only way they can be sure to get the right dose.



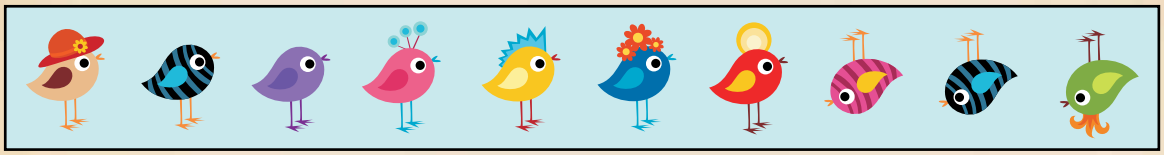
You Try It

Look at the numbers. Where is the 2? Say if it is in the tenths, hundredths, or thousandths place. Use the chart at the top of the page to help you.

43.026 7.293 713.012

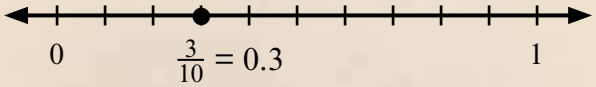
Finding a Place for Decimals

Look at the birds. What fraction of birds is upside down?



Basic Facts

We use a system of numbers called the decimal system. It is based on groups of ten. It is also based on multiples of ten. These can be hundreds. They can be thousands, or more! Look at the birds. Three out of the 10 birds are upside down. How would you write that fraction? It would be $\frac{3}{10}$. Now, think of how you would write it as a decimal. It would be 0.3. You would read it as "three-tenths." That is just how you would read the fraction, too. Look at the number line. The number is shown the same way.



Place value is the value of a digit. It is based on where it is located in a number. Think of the number 27.3. The 2 is in the tens place. That means it has a value of 20. The 7 is in the ones place. That gives it a value of 7. The 3 also has a value based on its place. The 3 is in the tenths place. That means it has a value of 0.3 (three-tenths). Now think about a larger number such as 827.345. Even in large numbers, every digit has its own place value.

Eight hundred twenty-seven and three hundred forty-five thousandths.

8	**2**	**7**	**.**	**3**	**4**	**5**
hundreds	tens	ones		tenths	hundredths	thousandths

The 8 is in the hundreds place. It has a value of 800.

The 2 is in the tens place. It has a value of 20.

The 7 is in the ones place. It has a value of 7.

The 3 is in the tenths place. It has a value of 0.3. That is three-tenths.

The 4 is in the hundredths place. It has a value of 0.04. That is four-hundredths.

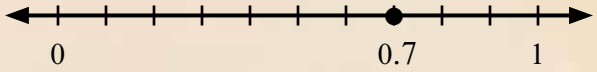
The 5 is in the thousandths place. It has a value of 0.005. That is five-thousandths.

The total value is 800 + 20 + 7 + 0.3 + 0.04 + 0.005. That equals 827.345.

Identifying Place Value

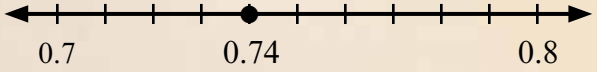
thousands	hundreds	tens	ones	•	tenths	hundredths	thousandths	ten-thousandths

This number line shows 0.7.



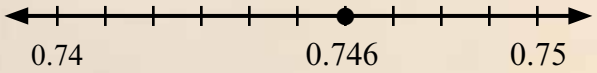
It is between the zero and the one. We read 0.7 as "seven-tenths." The 7 is in the tenths place.

This number line shows 0.74.



It is between the 0.7 (seven-tenths) and the 0.8 (eight-tenths). We read this as "seventy-four hundredths." The 4 is in the hundredths place.

This number line shows 0.746.



It is between the 0.74 (seventy-four hundredths) and 0.75 (seventy-five hundredths). We read it as "seven hundred forty-six thousandths." The 6 is in the thousandths place.

Place Value of Decimals in Our Daily Lives

Some people need to take medicines when they get sick. Type 1 diabetes is a disease. People with this disease need to give themselves shots regularly. But the amount of medicine they need can be different every time. They might need 20 units. They might need 0.5 units. They might only need 0.025 units! People who need to have shots need to know how to be accurate with decimals. It is the only way they can be sure to get the right dosage.

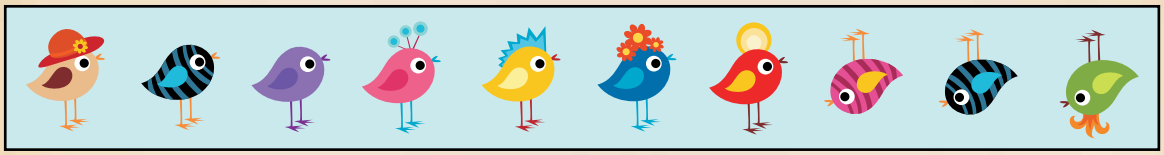
You Try It

Look at the numbers. In each case, say if the 2 is in the tenths, hundredths, or thousandths place. Use the chart at the top of the page to help you.

43.026 7.293 713.012

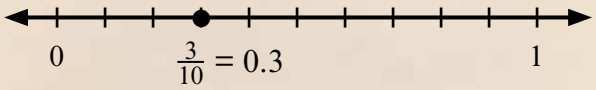
Finding a Place for Decimals

What fraction of birds is upside down?



Basic Facts

Our **decimal system** of numbers is based on groups of ten and multiples of ten. Multiples of ten can be hundreds, thousands, and so on. Look at the birds above. Three out of the ten birds are upside down. As a fraction this would be written $\frac{3}{10}$. As a decimal number, this is written 0.3. The decimal form is read "three-tenths" just like the fraction. The decimal form of three-tenths may be shown on a number line just like the fraction.



Place value is the value of a digit based on where it is in a number. Think of 27.3. The 2 is in the tens place, so it has a value of 20. The 7 is in the ones place so it has a value of 7. The 3 also has a value based on its place. The three is in the tenths place so it has a value of 0.3 (three-tenths). Even in a number such as 827.345, every digit has its own place value.

Eight hundred twenty-seven and three hundred forty-five thousandths

8	**2**	**7**	**.**	**3**	**4**	**5**
hundreds	tens	ones		tenths	hundredths	thousandths

The 8 is in the hundreds place. It has a value of 800.

The 2 is in the tens place. It has a value of 20.

The 7 is in the ones place. It has a value of 7.

The 3 is in the tenths place. It has a value of 0.3 (three-tenths).

The 4 is in the hundredths place. It has a value of 0.04 (four-hundredths).

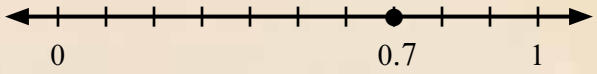
The 5 is in the thousandths place. It has a value of 0.005 (five-thousandths).

The total value is 800 + 20 + 7 + 0.3 + 0.04 + 0.005 = 827.345.

Identifying Place Value

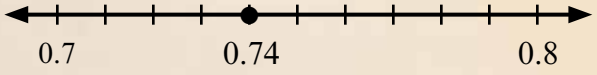
thousands	hundreds	tens	ones	•	tenths	hundredths	thousandths	ten-thousandths

Look at 0.7 on the number line.



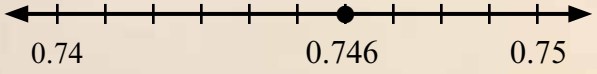
It is between the zero and the one. We read 0.7 as "seven tenths." The 7 is in the tenths place.

Look at 0.74 on the number line.



It is between the 0.7 (seven-tenths) and the 0.8 (eight-tenths). We read 0.74 as "seventy-four hundredths." The 4 is in the hundredths place.

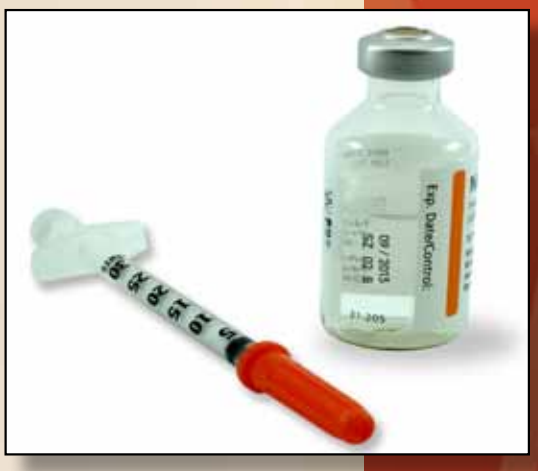
Look at 0.746 on the number line.



It is between the 0.74 (seventy-four hundredths) and 0.75 (seventy-five hundredths). We read 0.746 as "seven hundred forty-six thousandths." The 6 is in the thousandths place.

Place Value of Decimals in Our Daily Lives

People who have Type 1 diabetes make little to no insulin in their bodies. They use shots or a small pump to get the needed insulin. How much insulin is needed at any one time? It might be 20 units, 0.5 units, or even 0.025 units! Understanding decimals is an important tool for people with diabetes so that they get the right amount of medicine.



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In each case, describe the 2 as in the tenths, hundredths, or thousandths place. Use the chart at the top of the page to help you.

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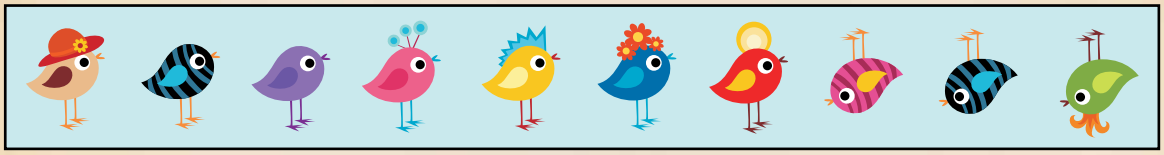
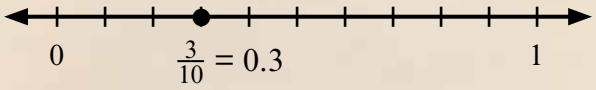
Finding a Place for Decimals

What fraction of birds is upside down?



Basic Facts

Our **decimal system** of numbers is based on groups of ten and multiples of ten; these are known as hundreds, thousands, and so on. If you look at the birds above, you can see that three out of the 10 birds are upside down. To represent this as a fraction would be written as $\frac{3}{10}$. As a decimal number, this is written as 0.3. The decimal form is read "three-tenths"—exactly like the fraction. The decimal form of three-tenths may also be shown on a number line in an identical way as the fraction.



Place value is the value of a digit based on where it is in a number. For example, in the number 27.3, the 2 is in the tens place and has a value of 20, and the 7 is in the ones place, so it has a value of 7. The 3 has a value also based on its place. The 3 is in the tenths place, so it has a value of 0.3 (three-tenths). Even in a large number such as 827.345, every digit has its own place value.

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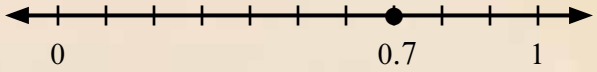

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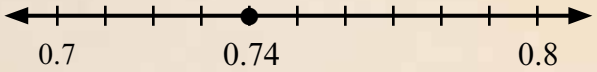

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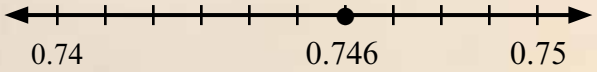

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Place Value of Decimals in Our Daily Lives

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You Try It

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