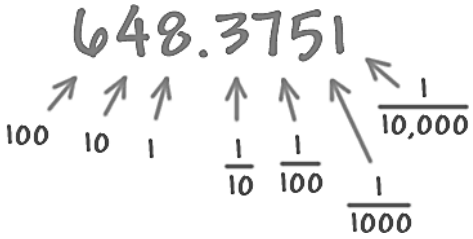
Name: _____ **Expanding and Reading Decimal Numbers**

Let's write the decimal number 648**.**3751 in expanded form.

First, we'll label the digits with their place values.



Then we'll multiply the digits by their place values and sum up the results.

$$6\times100 + 4\times10 + 8\times1 + 3\times\frac{1}{10} + 7\times\frac{1}{100} + 5\times\frac{1}{1000} + 1\times\frac{1}{10{,}000}$$

Carrying out the multiplication we get:

648**.**3751 = **600** + **40** + **8** + **$^{3}/_{10}$** + **$^{7}/_{100}$** + **$^{5}/_{1{,}000}$** + **$^{1}/_{10{,}000}$**

Now you do this one:

74.259 =

Okay, so how do you read these decimal numbers?

You read the part before (to the left of) the decimal point (the whole part) the same as you always have.

523 **"five hundred twenty-three"**

But what do you do about the decimal point and what comes after it (to its right)?

One way (the most common way) is to read the decimal point as "*point*" and then just read off the *digits* that follow.

Here's how it works:

This way is short, simple and easy to understand. It is how most people read decimal numbers.

7.29

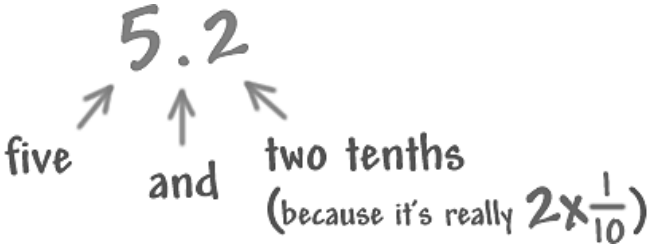
"seven point two nine"

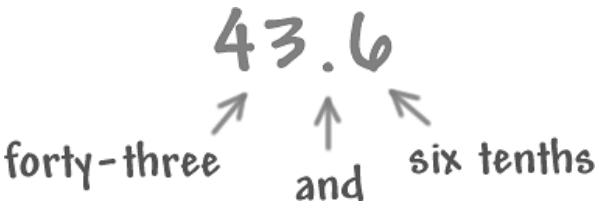
63.174

"sixty-three point one seven four"

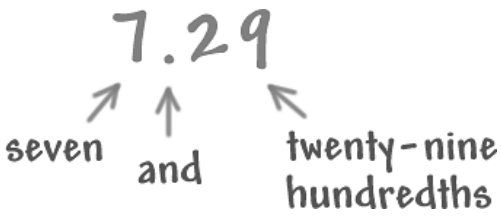
Name: _____ **Expanding and Reading Decimal Numbers**

The second way to read decimal numbers is to read the decimal point as "and" and then read what comes after (to its right) as a fraction.





What about 7**.**29? We read 7**.**29 as *"seven and twenty-nine hundredths."* Why? To shorten up its name by combining the 2 tenths and the 9 hundredths into one fraction.



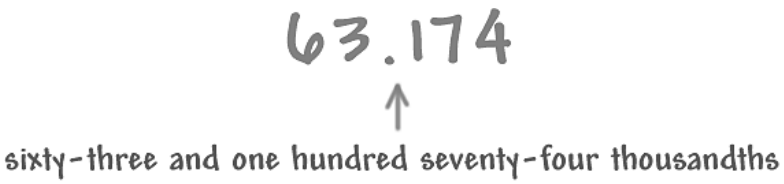
Let's expand the **.**29 part of 7**.**29.

.29 = (2 x 1/10) + (9 x 1/100) = 2/10 + 9/100.

Now we change the 2/10 to hundredths. 2/10 = 20/100 Why?

Then we add. 20/100 + 9/100 = 29/100 = "twenty-nine hundredths".

How about 63.174? We read the fractional part as "*one hundred seventy-four thousandths*". Again, we combine all the fractional parts into one fraction.



.174 = 1/10 + 7/100 + 4/1000. Let's change all three fractions to thousandths.

100/1000 + 70/1000 + 4/1000 = 174/1000

That's "one hundred seventy-four thousandths".

Notice: With this method, you read the fractional part of the decimal number as a regular number and then tack on the *place name* that goes with the very last decimal spot.