Decimals

8	3	5	.	7	2
hundreds	tens	ones		tenths	hundredths

0.7 written as a fraction: $\frac{7}{10}$

"seven tenths"

0.02 written as a fraction: $\frac{2}{100}$

"two hundredths"

"and" means to put in a decimal point!

How would we write "three hundred and seven thousandths"?

0.307 300.007 307,000

When writing a decimal as a fraction:

The number of decimal places there are to the right of the decimal point = the number of zeros after the one in the denominator of the fraction equivalent (**before** simplifying).

$0.\underline{31} = \frac{31}{1\underline{00}}$ $0.\underline{1} = \frac{1}{1\underline{0}}$ $0.\underline{593} = \frac{593}{1\underline{000}}$

Notice also that there is no decimal point in the fractions above!

When simplifying these fractions, keep in mind that the denominators are powers of ten. Break down 10, 100, and 1000 into prime factorizations.

10 100 1000

The only two primes that go into 10, 100, 1000, etc. are 2 and 5.

This means that if the numerators of the fractions we get aren't even and don't end in 5 or 0, then, they cannot be simplified!

Write the following as fractions in lowest terms:

0.54 0.328 .065

Decimals with a whole part can be broken down two different ways: as mixed numbers or as improper fractions.

As Mixed Number: 2.5 = $2\frac{5}{10} = 2\frac{1}{2}$

As Improper Fraction: 2.5 = $\frac{25}{10} = \frac{5}{2} = 2\frac{1}{2}$

Rounding Decimals

When writing numbers, we generally don't fill places in with zeroes as we are going away from the decimal point. (We don't write 453 as 00000453.000000…)

So, unlike with whole numbers, we're going to just cut off the numbers to the right of the place to which we're rounding instead of putting in zeroes as place holders. (There is one exception…)

Round 423.76203 to the nearest

tenth: hundredth: thousandth:

The exception to this "no zero" idea is when there are some nines involved. In this case, we have to make sure that there is <u>something</u> in the place to which we are rounding.

Round 13.8999 to the nearest

tenth: hundredth: thousandth:

Notice how we fill in to the place where we are rounding, but not thereafter!

One other thing to keep in mind:

✯Rounding to the nearest cent when dealing with money is the same as rounding to the nearest hundredth!!✯

There must, must, **must** be pennies in your answer!!!!

Rounding $654.15853 to the nearest cent is $654.16, **not** $654.20!!

Round these to the nearest cent:

$3.7653 $73.7896 $876.5819