Goals: Discuss the procedure for multiplying decimals and relating this to what we learned when multiplying fractions.

* Multiplying by 10,100,1000, etc. the easy way
* Dividing by 10, 100, 1000, etc. the easy way
* Multiplying decimals by using fractions
* Multiplying decimals
  + Why do we ignore the decimal at first, then move the decimal later?
* Multiplying signed decimals
* Powers of ten and multiplying by powers of ten
* Examples with circles, and evaluating expressions

# Multiplying by 10, 100, 1000 and other powers of ten

Lets examine what happens when we multiply any number by ten and other powers of ten.

Consider

What does multiplying by ten do to the number 31? What does it imply about the place values of the 1 and the 3?

Is there a short cut for multiplying by 10? What would it be for multiplying by 100?

Example, find the products.

Note: We do not need to touch pencil to paper to do these. Once again, this all comes down to place value!

# Dividing by 10, 100, 1000 and other powers of ten

Consider these examples, what patterns do we see to generalize division by 10?

What patterns do we see here?

# Multiplying decimals by using fractions

Example:

Let’s multiply these decimals, but let’s do it by using their equivalent fractions first:

So what is ending up happening? Why can we just ignore the decimal at first and treat these as numbers without decimals, then just move the decimal at the end? How many spaces do we move the decimal at the end?

# Multiplying decimals

9.5 5.7 8.03 9.4 6.6

x 0.3 x 3 x 0.2 x 0.2 x 2

# Multiplying with signed numbers

Do we have any new/different strategy for multiplying decimals with negatives? Or is it just business as usual and the product is just positive or negative based on the previous multiplications with signed numbers?

(2.11)(0.04) (63.3)(-0.02) (-2.9)(-.29) (3.53)(6.2) (-14.8)(12.7)

# Multiplying by powers of ten

# Examples with circles, and evaluating expressions