Long Division 2

Long division is a process of dividing into parts, starting from the biggest place value unit. For example, we divide the hundreds first, then the tens, then the ones. At each step, if we have a remainder, we combine that with the next unit we are going to divide.

> **Example 1.** Divide 78 by 3.
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> First we divide the 7 tens by 3. That gives 2 tens for the quotient, and 1 ten left over that we couldn't divide. The 1 leftover ten is combined with the 8 ones. That is 18. Next, divide 18 by 3. That is 6 and there is no remainder. So, the division is over. The quotient is 2 tens and 6 ones, or 26. Check: $3 \times 26 = 78$.

If you could understand the above example, you will probably have no problem understanding the long division process as it is usually written out in the long division "corner". If not, don't worry just yet.

In long division, there are **three** processes going on in each step: 1) divide, 2) multiply and subtract to find the remainder, 3) combine the remainder with the next digit from the dividend.

1. Divide.	2. Multiply and subtract.	3. Drop down the next digit.
Two goes into 5 two times, or 5 tens ÷ 2 = 2 whole tens—but there is a remainder!	To find it, multiply $2 \times 2 = 4$, write the 4 under the five, and subtract to find the remainder of 1 ten.	Next, drop down the 8 of the ones next to the leftover 1 ten. You combine the remainder ten with 8 ones, and get 18.

1. Divide.	2. Multiply and subtract.	3. Drop down the next digit.
Divide 2 into 18. Place 9 into the quotient.	Multiply $9 \times 2 = 18$, write that 18 under the 18, and subtract.	The division is over since there are no more digits in the dividend. The quotient is 29.