Subtraction Without Borrowing — Just Do It!

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Its Simple and Easy

Subtracting without borrowing is very simple and can easily be use as your everyday subtracting method. You can learn how to do it by simply following these two examples:

Editorial Note For convenience sake, the text below identifies the numbers involved in a subtraction operation using the following notation:

9 ← The M*inuend*
– 4 ← The *Subtrahend*
5 ← The *Result*

Step No.	Action Description	The Numbers	Example 1	Example 2
1.	**The Given Exercises** **Example 1.** Ordinarily, borrowing is needed right away and in every column except for the last one. **Example 2.** Ordinarily, borrowing is needed only starting with the third column.	*The Minuend* → *The Subtrahend* → *The Result* →	87,352 – 49,684	675,732 – 75,921
2.	Change every digit except for the leftmost one of the Minuend to ***9***.	*The Minuend* →	89,999	699,999
3.	Subtract ***1*** from the leftmost digit of the minuend.	*The Minuend* →	79,999	599,999
4.	The difference between the original minuend and the one we have in Step #3 is the number consisting of the digits we changed to ***9*** plus ***1***.	*Original Minuend* → *Step #3 Minuend* → *The Difference* →	87,352 – 79,999 7,353	675,732 –599,999 75,733
5.	Remember this number	*Remembered Number* →	7,353	75,733
6.	Write the new subtraction, using the new minuend.	*New Minuend* → *The Subtrahend* →	79,999 – 49,684	599,999 – 75,921
7.	Now the subtraction is simple. Do it in each column in any order you wish.	*New Minuend* → *The Subtrahend* → *Temp Result* →	79,999 – 49,684 30,315	599,999 – 75,921 524,078
8.	Add to the temp result of Step 7 the number you remember in Step 5.	*Temp Result* → *Remembered Number* → ***Final result*** →	30,315 + 7,353 37,668	524,078 + 75,733 599,811

That's it!

If it seems complex, it is only because a written description must be explicit and detailed. When Demonstrating it to students in person, they get it right away. [We plan to post here an animated demonstration with graphic and voice to simulate such personal explanation.]. Practice it a few times and you'll realize how simple and easy it is.

The Trick… If You Want To Understand How It Works

The basic idea is simple too.

Borrowing in necessary because one or more digits in the *subtrahend* are larger than the corresponding digit in the *minuend*. Only the leftmost digit of the *minuend* is larger than the corresponding digit in the *subtrahend*.

So what we do is this:

1. Replace all of the digit of the *minuend*, except this leftmost one, by ***9*** and reduce the leftmost one by ***1***. This guarantees us a temporary *minuend* of which every digit is equals to or larger than the corresponding digit in the *subtrahend*.

2. Now subtraction is very simple.

3. But we must add to the result the difference between the *original minuend* and the *minuend* that we used in the subtraction. Because we used only ***9***'s in the *temporary minuend*, this difference equals to the number that is made from the digits that we changed plus ***1***. So even here we do not need to do any subtraction.

See, the summary of the procedure is quite simple.

Following this subtraction procedure you do

- one simple single-digit subtraction, one operation for each column of digits, and
- one addition.

instead of subtraction with borrowing.

Now that you've seen it, make your own exercises and practice. You'll master it in no time.