

Adding and Subtracting Within 1,000: math lesson, Grade 2 – download the PDF

Three-digit numbers are big, but you already know the secret to working with them: **place value**. Today you will add and subtract numbers up to 1,000, use drawings of base-ten blocks, regroup tens and hundreds, estimate answers, and explain your thinking in words.

1. Hundreds, tens and ones

Every three-digit number is built from hundreds, tens and ones. A **flat** shows 100, a **rod** shows 10, and a **cube** shows 1. The number 347 has 3 flats, 4 rods and 7 cubes:

$$347 = 300 + 40 + 7$$

D Regrouping

Regrouping means trading blocks of equal value: 10 ones make 1 ten, 10 tens make 1 hundred, and the other way around. The total value does not change when you regroup.

We keep each place in its own column, so we always add or subtract **ones with ones, tens with tens, and hundreds with hundreds**.

2. Adding with no regrouping

When every column adds up to 9 or less, you just add column by column.

E Example 1

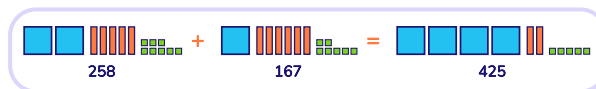
Find $234 + 152$.

Ones: $4 + 2 = 6$. Tens: $3 + 5 = 8$. Hundreds: $2 + 1 = 3$.

So $234 + 152 = 386$.

3. Adding with regrouping

When a column adds up to 10 or more, trade 10 of that unit for 1 of the next bigger unit. Look at the blocks for $258 + 167$:



M How to add three-digit numbers

1. Add the ones. If you have 10 or more, regroup 10 ones as 1 ten.
2. Add the tens, including any ten you just made. If you have 10 or more, regroup 10 tens as 1 hundred.
3. Add the hundreds, including any hundred you just made.
4. Write the sum and check that it makes sense.

E**Example 2**

Find $258 + 167$.

Ones: $8 + 7 = 15$ ones, which is 1 ten and 5 ones.

Tens: $5 + 6 + 1 = 12$ tens, which is 1 hundred and 2 tens.

Hundreds: $2 + 1 + 1 = 4$ hundreds.

So $258 + 167 = 425$.

4. Subtracting with no regrouping

If every digit on top is at least as big as the digit below it, subtract column by column.

$586 - 243$: ones $6 - 3 = 3$, tens $8 - 4 = 4$, hundreds $5 - 2 = 3$. So $586 - 243 = 343$.

5. Subtracting with regrouping

If a digit on top is smaller than the digit below it, you need to trade. Take 1 from the next bigger place and turn it into 10 of the smaller place.

E**Example 3**

Find $432 - 175$.

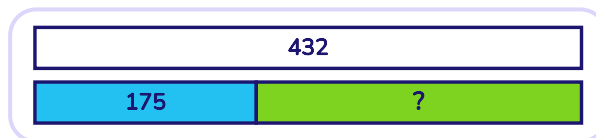
Ones: 2 is smaller than 5. Trade 1 ten for 10 ones: now $12 - 5 = 7$ ones. The tens place has 2 tens left.

Tens: 2 is smaller than 7. Trade 1 hundred for 10 tens: now $12 - 7 = 5$ tens. The hundreds place has 3 hundreds left.

Hundreds: $3 - 1 = 2$.

So $432 - 175 = 257$.

You can also think of subtraction as a missing part. The whole is 432 and one part is 175:

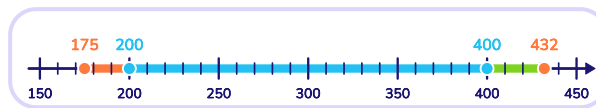
**Watch out!**

When you trade a ten for 10 ones, the tens digit goes down by 1. Forgetting this is the most common mistake. In $432 - 175$, do not write $3 - 7$ in the tens place; write $2 - 7$ first, and then trade again.

Zeros need extra care. To find $500 - 286$, there are no tens to trade, so trade 1 hundred for 10 tens first, then 1 of those tens for 10 ones. You get 4 hundreds, 9 tens and 10 ones: $10 - 6 = 4$, $9 - 8 = 1$, $4 - 2 = 2$. So $500 - 286 = 214$.

6. Counting up on a number line

Another way to subtract is to start at the smaller number and jump up to the bigger one. Add up all the jumps. To find $432 - 175$:



The jumps are $25 + 200 + 32 = 257$, the same answer as before. Two different strategies that agree is a great way to be sure.

7. Estimating

An **estimate** is a smart guess that is close to the exact answer. Round each number to the nearest hundred, then add or subtract.

E Example 4

Estimate $394 + 208$.

394 is close to **400** and **208** is close to **200**. So the sum is about $400 + 200 = 600$.

The exact sum is 602, which is very close.

If your exact answer is far from your estimate, go back and check your work.

8. Properties and checking

P

Properties of addition and the inverse rule

- Order does not matter: $245 + 163 = 163 + 245$.
- Grouping does not matter: $(275 + 25) + 138 = 275 + (25 + 138)$. Look for numbers that make a friendly hundred.
- Adding 0 changes nothing: $318 + 0 = 318$.
- Addition undoes subtraction: if $432 - 175 = 257$, then $257 + 175 = 432$.

Subtraction does **not** work in any order: $9 - 4$ is not the same as $4 - 9$. Use the addition check on every subtraction problem.

!

Tip from Zyro

On my planet we always ask, “Can I make a friendly hundred?” To add $275 + 138 + 25$, I add $275 + 25 = 300$ first, then $300 + 138 = 438$. Easy!

9. Explaining your strategy in writing

Good mathematicians say what they did and why. Use these sentence starters: “First, I...”, “Then, I regrouped because...”, “I checked by...”, “My answer makes sense because...”.

Example: “To find $700 - 389$, I took away 400 and got 300. But I took away 11 too many, so I added 11 back. The answer is 311. I checked: $311 + 389 = 700$.”

Key takeaways

- Line up the places: add or subtract ones, then tens, then hundreds.
- Regroup 10 ones as 1 ten and 10 tens as 1 hundred when adding.
- When subtracting, trade 1 ten for 10 ones or 1 hundred for 10 tens, and lower the digit you traded from.
- Estimate with rounding to see if your answer is reasonable.
- Check subtraction by adding, and use friendly hundreds to add smartly.
- Explain what you did in words, step by step.



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