

Adding and Subtracting Within 100: math lesson, Grade 2 – download the PDF

Two-digit numbers are everywhere: the pages in a book, the points in a game, the cookies on a tray. In this chapter you will learn how to add and subtract numbers up to 100 in smart ways. You will use tens and ones, number lines, and a quick check to make sure every answer is right.

1. Tens and ones

Every two-digit number is made of **tens** and **ones**. The number **47** has **4** tens and **7** ones, so $47 = 40 + 7$. Base-ten blocks help you see this: a tall rod stands for one ten, and a small square stands for one one.

Number	Tens	Ones	Expanded form
34	3	4	$30 + 4$
70	7	0	$70 + 0$
95	9	5	$90 + 5$

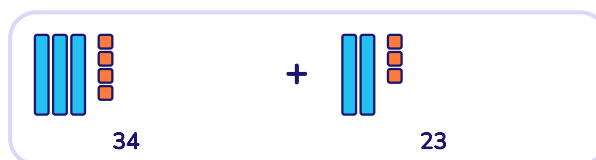
D Place value

The **place** of a digit tells you its value. In **58**, the digit **5** is in the tens place and means **50**. The digit **8** is in the ones place and means **8**.

Ten ones can be traded for one ten. Ten tens make one hundred. This trade is the secret behind regrouping.

I 2. Adding without regrouping

Sometimes the ones add up to **9** or less. Then you do not need to trade anything: add the tens together, add the ones together, and put the two answers together.



M Method: add tens and ones

1. Write each number as tens and ones.
2. Add the ones.
3. Add the tens.
4. Join the two results.

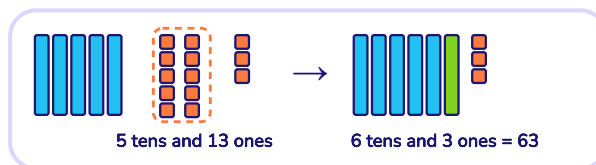
E**Example 1**

Find $46 + 32$.

Ones: $6 + 2 = 8$. Tens: $4 + 3 = 7$ tens, which is **70**. Together: $70 + 8 = 78$. So $46 + 32 = 78$.

3. Adding with regrouping

When the ones add up to **10** or more, you make a new ten. This is called **regrouping** (some people say “carrying”).

**E****Example 2**

Find $38 + 25$.

Ones: $8 + 5 = 13$. That is **1** ten and **3** ones. Tens: $3 + 2 = 5$, plus the new ten makes **6** tens. The answer is $60 + 3 = 63$. So $38 + 25 = 63$.

Careful!

Do not forget the new ten. If you write $38 + 25 = 53$, you left out the ten that came from **13** ones.

4. Subtracting without regrouping

If each digit of the top number is at least as big as the digit under it, you can subtract the ones from the ones and the tens from the tens.

E Example 3

Find $74 - 31$.

Ones: $4 - 1 = 3$. Tens: $7 - 3 = 4$ tens, which is **40**. The answer is $40 + 3 = 43$.

5. Subtracting with regrouping

What if there are not enough ones? For $62 - 27$, you cannot take **7** ones from **2** ones. So you **trade one ten for ten ones**.

M Method: subtract with regrouping

1. Look at the ones. If the top digit is too small, break one ten into ten ones.
2. Subtract the ones.
3. Subtract the tens (there is one fewer ten now).
4. Join the results.

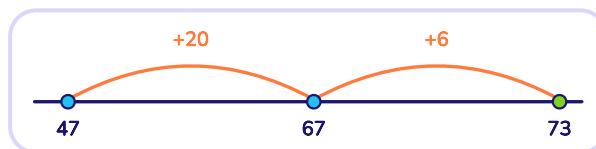
E**Example 4**

Find $62 - 27$.

62 is **6** tens and **2** ones. Trade one ten: now it is **5** tens and **12** ones. Ones: $12 - 7 = 5$. Tens: $5 - 2 = 3$. The answer is $30 + 5 = 35$.

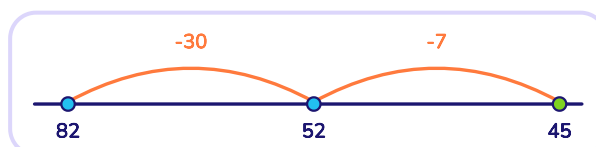
6. Number lines and place value strategies

You do not have to use the same way every time. An **open number line** is a line with no fixed marks. You start at the first number and make jumps: jump by tens first, then by ones.

**E****Example 5**

Find $47 + 26$ on an open number line. Start at **47**. Jump **20** to reach **67**. Jump **6** more to reach **73**. So $47 + 26 = 73$.

The same idea works backward for subtraction. To find $82 - 37$, start at **82**, jump back **30** to **52**, then jump back **7** to **45**.





Zyro's trick: make a ten

To add $38 + 25$, take **2** from the **25** and give it to the **38**. Now you have $40 + 23 = 63$. Friendly numbers that end in zero are much easier to add!

7. Adding up to four numbers

You can add three or four two-digit numbers, too. Look for numbers whose ones make ten, and add those first. The order of adding does not change the total.



Example 6

Find $12 + 25 + 18 + 30$. The ones **2** and **8** make **10**, so add $12 + 18 = 30$ first. Then $30 + 30 = 60$. Finally $60 + 25 = 85$.

If no numbers match, add two at a time and keep a running total, like $14 + 23 = 37$, then $37 + 31 = 68$, then $68 + 22 = 90$.

8. Checking with the inverse operation

Addition and subtraction are **inverse operations**: one undoes the other. You can use this to test an answer.



Checking rules

If $a + b = c$, then $c - b = a$. If $c - b = a$, then $a + b = c$.

E Example 7

Ava says $73 - 26 = 47$. Check: $47 + 26 = 73$. It matches, so the answer is right. If Ava had said 53 , then $53 + 26 = 79$, which is not 73 , and she would know to try again.

Key takeaways

- A two-digit number is made of tens and ones: $47 = 40 + 7$.
- When adding, add the ones, then the tens. If the ones make **10** or more, regroup to make a new ten.
- When subtracting, if there are not enough ones, trade one ten for ten ones.
- An open number line lets you jump by tens and then by ones.
- When you add several numbers, look first for ones that make ten.
- Check any answer with the inverse operation.



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