

# Compare Without Calculating

## A GUIDE

Figure out which side is bigger just by looking at how the numbers are built — no adding required.

### The Lazy Genius Move

Imagine two friends each grab a bag of 47 marbles. Then one friend picks up 14 more, and the other picks up 13 more. You already know who has more marbles — and you never counted a single one.

That is the whole trick in this guide. When two problems share a piece, you can ignore the shared piece and compare only what is different. Mathematicians do this all the time, because it is faster than calculating and almost impossible to get wrong.

### Same Start, Bigger Jump

When both sides start with the same number, the side that adds more ends up bigger. The shared start is like two runners on the same starting line — the winner is whoever jumps farther from it.

So when you see matching numbers on both sides, cross them out in your head. Then compare only the parts that are left. That tiny comparison decides the whole thing.

$$47 + 14 > 47 + 13$$

**Worked example** Which is bigger:  $358 + 47$  or  $358 + 74$ ?

1. Both sides start with the same number, 358, so you can ignore it.
2. Compare only the parts that differ: 47 and 74.
3. 74 is bigger than 47, so the side adding 74 wins.

**Answer:**  $358 + 74$  is bigger

### Taking Away Less Leaves More

Subtraction flips your instincts, so watch closely. If two people start with the same amount, the one who gives away LESS keeps MORE. A smaller take-away number means a bigger answer.

Picture 80 cookies on two identical trays. One tray loses 19 cookies, the other loses 21. The tray that lost less is the fuller tray — no counting needed.

$$80 - 19 > 80 - 21$$

**Worked example** Which is bigger:  $500 - 68$  or  $500 - 86$ ?

1. Both sides start at 500, so ignore the 500.
2. Compare what is taken away: 68 versus 86.
3. 68 is the smaller take-away, and taking away less leaves more.
4. So  $500 - 68$  must be the bigger result.

**Answer:**  $500 - 68$  is bigger

### The See-Saw Trick

Sometimes neither side matches — but the sum can still be equal. If one number goes down by 1 and the other goes up by 1, the total does not move at all. It is like sliding a marble from your left hand to your right: you still hold the same number of marbles.

This move is called compensation. Take a little from one number, give exactly that much to the other, and the sum stays perfectly balanced.

$$36 + 29 = 35 + 30$$

**Worked example** Without adding, decide: is  $46 + 38$  equal to  $44 + 40$ ?

1. Compare the first numbers: 46 dropped by 2 to become 44.
2. Compare the second numbers: 38 grew by 2 to become 40.
3. A drop of 2 and a rise of 2 cancel out exactly, so the totals match.

**Answer:** Yes — they are equal

## Detective Mode

Now you have three tools: same start means compare the jumps, smaller take-away means bigger leftover, and equal trades keep sums balanced. Real problems will try to hide these patterns — maybe the matching numbers sit in different spots, like  $199 + 250$  versus  $250 + 198$ .

Your job is to be a detective, not a calculator. Ask first: what is the same on both sides? What changed, and by how much? Only calculate if no pattern shows up — and with practice, one almost always does.

**Worked example** Which is bigger:  $199 + 250$  or  $250 + 198$ ?

1. Order does not matter in addition, so read the right side as  $198 + 250$ .
2. Now both sides share a 250 — ignore it.
3. Compare the leftovers: 199 versus 198, and 199 is bigger.

**Answer:**  $199 + 250$  is bigger

## Remember

- ★ If both sides share a number, cross it out in your head and compare only what is left.
- ★ In subtraction, small take-away means big answer — the side subtracting less always keeps more.
- ★ If one number goes down exactly as much as the other goes up, the sum has not moved at all.
- ★ Look for the pattern first and calculate last — structure is faster than arithmetic.

## Now you try

- 1) Which sign goes between  $62 + 9$  and  $62 + 7$ :  $<$ ,  $>$ , or  $=$ ?

Answer: \_\_\_\_\_

- 2) Which sign goes between  $140 - 25$  and  $140 - 52$ :  $<$ ,  $>$ , or  $=$ ?

Answer: \_\_\_\_\_

- 3) Which sign goes between  $57 + 28$  and  $55 + 30$ :  $<$ ,  $>$ , or  $=$ ?

Answer: \_\_\_\_\_

- 4) Kim has  $300 - 48$  stickers and Leo has  $300 - 84$  stickers. Who has more stickers?

Answer: \_\_\_\_\_

- 5) Fill in the blank so both sides are equal:  $46 + 39 = 45 + \underline{\hspace{1cm}}$ .

Answer: \_\_\_\_\_

- 6) Which sign goes between  $199 + 250$  and  $250 + 198$ :  $<$ ,  $>$ , or  $=$ ?

Answer: \_\_\_\_\_

- 7) Fill in the blank so both sides are equal:  $730 - 58 = 732 - \underline{\hspace{1cm}}$ .

Answer: \_\_\_\_\_

- 8) Which sign goes between  $500 - 199$  and  $501 - 200$ :  $<$ ,  $>$ , or  $=$ ?

Answer: \_\_\_\_\_

## Answers — check yourself

1. >

2. >

3. =

4. Kim

5. 40

6. >

7. 60

8. =