

Smart Computing

A GUIDE

Rearrange before you crunch: find pairs that make round numbers, and spot opposites that vanish. Structure beats grinding.

The Slow Way and the Sneaky Way

Try adding $7 + 25 + 3 + 75$ the slow way, left to right. First $7 + 25 = 32$. Then $32 + 3 = 35$. Then $35 + 75 = 110$ — it works, but it feels like carrying rocks uphill.

Now look at the whole line before touching anything. See how 7 and 3 make 10? And 25 and 75 make 100? Suddenly the problem is just $10 + 100 = 110$.

Same answer, way less work. That is the whole secret of smart computing: read the entire problem first, then choose the easiest path through it.

Pair Up for Round Numbers

When you are only adding, order does not matter. $2 + 9$ and $9 + 2$ land in the same place. So you are allowed to shuffle the numbers around before you start.

Use that freedom to build round numbers — 10, 100, 1000. They are the friendliest numbers in math, because adding them takes almost no effort.

The trick is in the last digits. A number ending in 7 wants a partner ending in 3. One ending in 25 wants a 75. Scan the line, match the partners, then add the easy totals.

$$7 + 25 + 3 + 75 = 110$$

↳ Pair $7 + 3 = 10$ and $25 + 75 = 100$

Worked example Add: $38 + 45 + 62 + 55$

1. Scan the last digits: 38 ends in 8 and 62 ends in 2, so they pair up.
2. $38 + 62 = 100$, a nice round number.
3. 45 and 55 pair up too: $45 + 55 = 100$.
4. Now the whole problem is just $100 + 100$.

Answer: 200

Zero in Disguise

Sometimes a problem adds a number and then subtracts the very same number. Add 9, take away 9 — you end up exactly where you started. That pair is a zero wearing a costume.

So do not compute it. Cross out both, and watch the problem shrink. In $18 + 9 - 9$, the 9s erase each other, leaving just 18.

Problem writers love hiding these pairs far apart in a long line. Your job is to catch them before you start grinding.

$$18 + 9 - 9 = 18$$

↳ $+9$ and -9 cancel — cross them both out

Worked example Compute: $34 + 17 + 6 - 17$

1. Scan the line for a number that appears with both + and -: there is $+17$ and -17 .
2. They cancel to zero, so cross them both out.
3. All that is left is $34 + 6 = 40$.

Answer: 40

Put the Moves Together

Long problems often hide both tricks at once: a cancelling pair and a round-number pair. Hunt for the cancel first, because it deletes numbers for free. Then pair up what is left.

One rule keeps you safe when you shuffle: every number keeps its own sign. If it was being subtracted, it is still subtracted wherever you move it. The $-$ travels glued to its number.

With those two moves, a scary six-number line often melts down to one easy step. That is not luck — that is structure doing the heavy lifting for you.

$$46 + 30 - 6 + 14 = 84$$

↳ $46 - 6 = 40$ first, then $40 + 30 + 14$

Worked example Compute: $58 + 27 + 42 - 27 + 13$

1. Hunt for the cancel: $+27$ and -27 erase each other.
2. That leaves $58 + 42 + 13$.
3. Pair for a round number: $58 + 42 = 100$.
4. Finish easily: $100 + 13 = 113$.

Answer: 113

Remember

- ★ Read the whole line before computing anything — the easiest move is often hiding at the far end.
- ★ Last digits are matchmakers: a 7 pairs with a 3, a 25 pairs with a 75, because together they make round numbers.
- ★ The same number added and subtracted is a zero in disguise — cross out both and skip the work.
- ★ When you shuffle numbers around, each one keeps its own sign; the minus travels glued to its number.

Now you try

- 1) Add: $8 + 15 + 2$
Answer: _____
- 2) Add: $6 + 9 + 4 + 1$
Answer: _____
- 3) Compute: $23 + 8 - 8$
Answer: _____
- 4) Add: $35 + 40 + 65$
Answer: _____
- 5) Compute: $17 + 28 - 17 + 2$
Answer: _____
- 6) Add: $46 + 19 + 54 + 81$
Answer: _____
- 7) Compute: $125 + 67 - 25 + 33$
Answer: _____
- 8) Compute: $250 + 86 - 50 + 14 - 86$
Answer: _____

Answers — check yourself

1. 25
2. 20
3. 23
4. 140
5. 30
6. 200
7. 200
8. 214