



Writing and reading expressions

A record of a calculation, not the answer

- Today: why $8 + 7 \times 2$ is not “add 8 and 7, then double”.

Transcribing is not translating

- “Add 8 and 7, then multiply by 2.”
- Written as it is said: $8 + 7 \times 2$.

That means $8 + 14 = 22$. We wanted 30.

Start from the **LAST** operation

- What happens last? The doubling.
- So the shape is $() \times 2$.
- The sum goes inside: $(8 + 7) \times 2$.

Work backwards from the final operation.

Two you can get backwards

- “Subtract 5 from 12” $\rightarrow 12 - 5$ — the words name 5 first.
- “Divide 20 by 4” $\rightarrow 20 \div 4$ — but long division writes the 4 first.

+ and $\times$ hide this error. – and $\div$ do not.

An expression is worth more than a number

- 30 tells you the answer.
- $(8 + 7) \times 2$ tells you what was done.

You can check, change and reason about the second one.

Interpret **WITHOUT** calculating

- $3 \times (18932 + 921)$.
- How does it compare with $18932 + 921$?

Three times as large. No arithmetic needed.

And the bracket is doing the work

- $3 \times (18932 + 921)$ triples the whole sum.
- $3 \times 18932 + 921$ triples only the first part.

Different numbers. The brackets are the difference.

Your turn

- Write: 5 less than the product of 3 and 8.
- Then: is $(2 + 3) \times 4$ bigger than $2 + 3$? By how many times — without working it out?

Say what is done, then say how it compares.