



Powers of ten

The digits move. The point does not.

- Today: why 2.7×10 is not 2.70.

The rule that works

- $34 \times 10 = 340$. Add a zero.
- $508 \times 10 = 5080$. Add a zero.

Full marks for two years.

Now try it on 2.7

- Add a zero: 2.70.
- Is 2.70 bigger than 2.7?

No. It is the same number.

What was really happening

- In 34×10 , the 3 and the 4 each moved one place LEFT.
- The ones place was left empty.

The 0 records an empty place. It is not the rule.

So 2.7×10

- The 2 moves from ones to tens.
- The 7 moves from tenths to ones.

27. Nothing was added.

Both directions

- One place LEFT: ten times as much.
- One place RIGHT: one tenth as much.

$450 \rightarrow 45 \rightarrow 4.5 \rightarrow 0.45$. Same digits.

Counting the zeros

- $10^1 = 10$ $10^2 = 100$ $10^3 = 1000$.
- The exponent says how many places to move.

10^3 is three tens multiplied — not 3×10 .

Your turn

- 0.6×10 . Then 2.7×10^2 . Then $450 \div 10^3$.
- Then: say what happens to the 7 in 2.7 when you multiply by 10.

Name the digit and the place it moves to.