

Patterns in Tables



Key idea

If y changes by the **same amount** for equal steps in x , the points make a **straight line**.

Method

1. See how x changes.
2. See how y changes.
3. Same y -jump = gradient m .
4. Rule: $y = mx + c$.

Example

$(0, 1), (1, 4), (2, 7), (3, 10)$.

Each step x rises 1 and y rises 3, so $m = 3$. At $x = 0, y = 1$, so $y = 3x + 1$.

Common mistake

Do not judge from one point. Compare the change across the **whole** table.



= **copy this into your book.** Boxes without a pencil are just to read.

Straight Line or Curve?



Key idea

Look at the **first differences** — the jump in y . Constant jumps make a line; changing jumps make a curve.

Curve example

$(0, 0), (1, 1), (2, 4), (3, 9)$.

The y -jumps are $+1, +3, +5$ — not constant, so it is a **curve**.

Uneven x -steps

If x does not rise by 1, compare each y -jump to its x -jump. Equal x -steps must give equal y -steps for a line.

Common mistake

A falling table can still be a straight line — a negative gradient is fine. What matters is that the jumps stay **equal**.