Lesson 101

Continuing a pattern — what comes next?

MODULE 8 · ALGEBRA — PATTERNS, EXPRESSIONS AND EQUATIONS ALGEBRA

To continue a number pattern, look at how each term changes. The **rule** describes the change — usually 'add the same amount each time' or 'multiply by the same factor each time'.

→ **3, 7, 11, 15, …** rule: add 4. Next: 19.

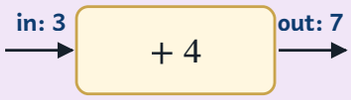
→ **2, 6, 18, 54, …** rule: multiply by 3. Next: 162.

HOW TO ANSWER TODAY

- **Solve for x.** Do the OPPOSITE operation to both sides. + becomes −; × becomes ÷.
  x + 7 = 15 → x = 15 − 7 = 8 · 3x = 21 → x = 21 ÷ 3 = 7

TRY IT ON THE LINE

Look at the function machine. Apply the rule to each input and write the output.



1. Rule: **+ 4**. If 3 → 7, then 7 → _____, then _____, then _____ (continue the pattern).
2. Rule: **× 2**. Inputs 1, 2, 3, 4, 5 → outputs _____, _____, _____, _____, _____
3. Rule: **− 3**. Inputs 10, 13, 16, 19 → outputs _____, _____, _____, _____

PRACTICE

1. At Camogie training under the floodlights, Aoife counts the cones laid out for each drill of the night. The first four drills use **19**, **25**, **31** and **37** cones, with the same number added each time. How many cones will be laid out for the fifth drill?

   What comes next in the sequence: 19, 25, 31, 37, ___ ?

2. The 5th class library rota lists the page numbers each pupil reads aloud on Mondays: **23**, **33**, **43**, **53**, ___ . The pattern continues in the same way. What page number comes next on the rota?

CHALLENGE

1. The school canteen starts the week with **42** cartons of milk in the chiller. Each day the same number of cartons is sold, leaving **35** on Tuesday, **28** on Wednesday and **21** on Thursday. How many cartons will be left on Friday?

   What comes next in the sequence: 42, 35, 28, 21, ___ ?

2. Oisín brings a bag of bread to the pond in Wicklow to feed the ducks. After feeding them for **1 minute** he has **14** pieces left, after **2 minutes** he has **9** pieces, after **3 minutes** he has **4** pieces, and after **4 minutes** he has **-1** pieces (he had to borrow one from his sister). Following the same pattern, how many pieces will he have after **5 minutes**?

   What comes next in the sequence: 14, 9, 4, -1, ___ ?