

Generalising number patterns and sequences

MODULE 10 · ALGEBRA — PATTERNS, EXPRESSIONS AND EQUATIONS ALGEBRA

A **sequence** follows a rule. Spotting how it grows lets you predict later terms and describe the pattern in general.

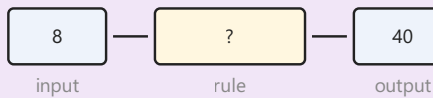
- 3, 7, 11, 15... goes up 4 each time.
- Term-to-term: 'add 4'. Position rule helps you jump ahead.

HOW TO ANSWER TODAY

- **Find the rule.** Look at how each input changes to its output. Try \times first, then $+$ or $-$.
 $3 \rightarrow 6$, $5 \rightarrow 10$, $7 \rightarrow 14 \rightarrow$ rule is $\times 2$

WARM-UP

1



Granny keeps her calves in pens at the farm in Galway. When there are **8** calves, she puts out **40** bales of straw; for **1** calf she puts out **5** bales; for **4** calves she puts out **20** bales. What rule does Granny use to work out the bales from the calves?

2

Liam is pinning up bookmarks along the back wall of the classroom for World Book Day. He pins them in a pattern, with **10** bookmarks in the first row, **13** in the second, **16** in the third and **19** in the fourth. If the pattern continues, how many bookmarks will be in the fifth row?

What comes next in the sequence: 10, 13, 16, 19, ___?

PRACTICE

1



Cian is making a points chart for 5th class on the noticeboard. Every pupil starts the week with **10** bonus stickers, then earns extra stickers for reading. He writes the totals so far: **8** → **18**, **3** → **13**, **7** → **17**. What rule turns the reading stickers into the total stickers on the chart?

2

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, ___?

CHALLENGE

1



Cian is selling raffle tickets for the 5th class GAA fundraiser. Each book of tickets costs the same in euros, plus a fixed booklet fee added to every order. His sales notebook shows: **9** books → **€58**; **6** books → **€40**; **8** books → **€52**. What is the rule linking the number of books to the total cost?

2

Cian saves his pocket money in a jar. Each week he counts what is left and writes the amount in his copy: **€14**, **€11**, **€8**, **€5**. If the pattern continues, how much will be in the jar next week?

What comes next in the sequence: 14, 11, 8, 5, ___?