Generalising number patterns and sequences

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

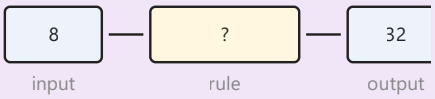
- **Find the rule.** Look at how each input changes to its output. Try × first, then + or −.
  3 → 6, 5 → 10, 7 → 14 → rule is × 2

WARM-UP

1 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, ___ ?

2



On the school nature walk through the local park, 5th class spot oak trees and count the acorns under each one. Under one tree they find **8** acorns, under another **3** acorns, and under a third **7** acorns. Cian notices a pattern: **8** acorns gives **32** leaves on the branch above, **3** acorns gives **12** leaves, and **7** acorns gives **28** leaves. What rule turns each acorn count into the number of leaves?

PRACTICE

1

Ms Murphy is decorating the 5th class room for World Book Day. For every shelf she fills with books, she pins up a fixed number of bunting flags around the room. She notices a pattern between books used and total decorations: **10** → **23**, **6** → **19**, **3** → **16**. What is the rule?

2 The 5th class library tracks how many books are borrowed each week. The first four weeks show **5**, **15**, **25** and **35** books borrowed. If the pattern continues, how many books will be borrowed in the next week?

> What comes next in the sequence: 5, 15, 25, 35, ___ ?