

Describing a rule in words

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.

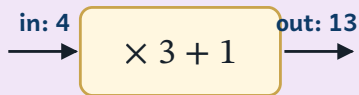
HOW TO ANSWER TODAY

- **Find the rule.** Look at how each input changes to its output. Try \times first, then $+$ or $-$.

3 → 6, 5 → 10, 7 → 14 → rule is $\times 2$

TRY IT ON THE LINE

For each input → output pair, describe the rule in plain words (e.g. 'add 5', 'multiply by 3 then add 2').



1. 1 → 4, 2 → 7, 3 → 10. Rule = _____

2. 1 → 2, 2 → 5, 3 → 10. Rule = _____

3. 10 → 5, 20 → 10, 30 → 15. Rule = _____

PRACTICE

- 1 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?

2



At break time in 5th class, Niamh shares out biscuits from a packet. For every group that comes to her table, she gives them 14 more biscuits than the number of children in the group. When 4 children come, she gives 18 biscuits; when 2 come, she gives 16; when 9 come, she gives 23. What is the rule she is using?

CHALLENGE

- 1 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, ____ ?

2



Mr Ó Broin is in the photocopier room getting worksheet packs ready for tomorrow. For each pupil, he prints a set number of sheets and then adds the same number of extra cover sheets to the pile. The pile sizes go 8 → 32, 3 → 17 and 7 → 29 pupils to total sheets. What is the rule that turns the number of pupils into the total number of sheets?