

Generalising number patterns and sequences

MODULE 10 · ALGEBRA — PATTERNS, EXPRESSIONS AND EQUATIONS

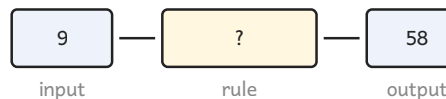
ALGEBRA

HOW TO ANSWER TODAY

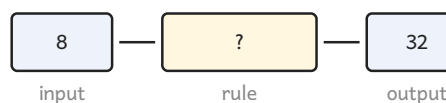
- Find the rule. Look at how each input changes to its output. Try $\times$ first, then $+$ or $-$.
 $3 \rightarrow 6$, $5 \rightarrow 10$, $7 \rightarrow 14 \rightarrow$ rule is $\times 2$

STRETCH PROBLEMS

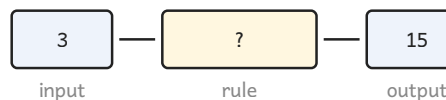
- 1 Cian is selling raffle tickets for the 5th class GAA fundraiser. Each book of tickets costs the same in euros, plus a fixed booklet fee added to every order. His sales notebook shows:
 9 books $\rightarrow$ €58 ; 6 books $\rightarrow$ €40 ; 8 books $\rightarrow$ €52 .
 What is the rule linking the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



- 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 $8 \rightarrow 32$, $3 \rightarrow 17$ and $7 \rightarrow 29$ pupils to total sheets. What is the rule that turns the number of pupils into the total number of sheets?



- 3 Granny pays Niamh pocket money for helping with the calves at the farm. She uses a rule based on the number of calves Niamh feeds: 3 calves earns €15, 9 calves earns €33, and 10 calves earns €36. What is the rule?



- 4 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?

- 5 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?

INVESTIGATE

Growing patterns

Build a pattern that grows (with counters, matchsticks or drawings). Record how many you need for the 1st, 2nd, 3rd... shape in a table. Find a rule that predicts the 10th shape without building it.



x y



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x y

