

Algebra problem-solving and end-of-year review

MODULE 10 · ALGEBRA — PATTERNS, EXPRESSIONS AND EQUATIONS

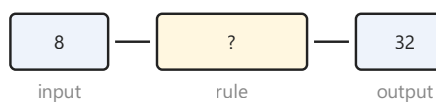
ALGEBRA

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 $\times 2$
- **Solve in two steps.** Undo the $+$ or $-$ first, then undo the $\times$ or $\div$.
 $2x + 5 = 13 \rightarrow 2x = 8 \rightarrow x = 4$
- **Letter expressions.** A letter stands for a number. Swap the letter for its value, then work out the answer.
 If $n = 3$, then $2n + 5 = 2 \times 3 + 5 = 11$

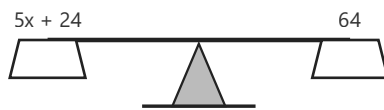
STRETCH PROBLEMS

1



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?

2



Find x so the scale balances.

Granny has 5 fields on her farm, each with the same number of calves. She also has 24 calves in the barn. Altogether there are 64 calves on the farm. How many calves are in each field?

3

5th class are planting seedling trays in the school polytunnel. Each row holds $3(n - 1) + 4$ seedlings, where n is the number of pupils planting in that row. If $n = 7$, what is the value of $3(n - 1) + 4$?

4

Mr Ó Briain hands out pencils from the classroom store. Each table gets $3(n - 1) + 4$ pencils, where n is the number of pupils at the table. If $n = 6$, how many pencils does the table get?

If $n = 6$, what is the value of $3(n - 1) + 4$?

5

Saoirse is setting up a sleepover and lays out biscuits on plates for her friends. Each plate gets 3 biscuits for every guest except herself, plus 4 extra biscuits on a sharing plate in the middle. If $n = 5$ is the total number of friends at the sleepover, how many biscuits are there in total when you work out $3(n - 1) + 4$?

If $n = 5$, what is the value of $3(n - 1) + 4$?