

# Rules for patterns using words and tables

MODULE 10 · ALGEBRA — PATTERNS, EXPRESSIONS AND EQUATIONS

ALGEBRA

## HOW TO ANSWER TODAY

- **Function machine.** Do EACH step of the rule in order to the input.

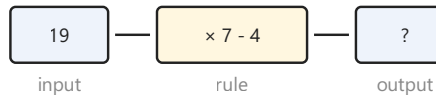
Rule  $\times 4 + 2$ , input 5  $\rightarrow 5 \times 4 = 20, + 2 = 22$

- **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



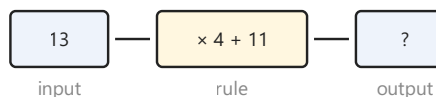
Cian and his sister Saoirse use a number machine to work out how to split their pocket money fairly. The rule is: multiply by **7**, then subtract **4**. Cian puts in the number **19**. What number comes out?

2



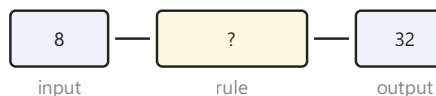
Granny pays Niamh pocket money for helping with the calves at the farm. She uses a rule based on the number of calves Niamh feeds: **3** calves earns **€15**, **9** calves earns **€33**, and **10** calves earns **€36**. What is the rule?

3



On the 5th class nature walk through the local park, Oisín spots a rule on a worksheet from his teacher: multiply the number of trees in each row by **4**, then add **11** birds resting nearby. If one row has **13** trees, what number does the rule give?

4



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?

5



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**  $\rightarrow$  **23**, **6**  $\rightarrow$  **19**, **3**  $\rightarrow$  **16**. What is the rule?