

Rules for patterns using words and tables

MODULE 10 · ALGEBRA — PATTERNS, EXPRESSIONS AND EQUATIONS

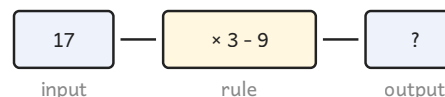
ALGEBRA

HOW TO ANSWER TODAY

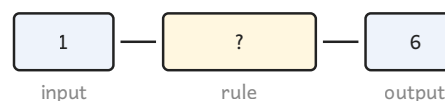
- **Function machine.** Do EACH step of the rule in order to the input.
- **Find the rule.** Look at how each input changes to its output. Try $\times$ first, then $+$ or $-$.
 $3 \rightarrow 6, 5 \rightarrow 10, 7 \rightarrow 14 \rightarrow$ rule is $\times 2$

STRETCH PROBLEMS

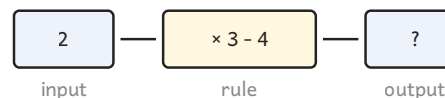
- 1 Aoife is helping decorate the classroom for World Book Day. She feeds numbers into a function machine with the rule $\times 3 - 9$. If the input is 17, what is the output?



- 2 Saoirse is growing beans in the school polytunnel in spring. She records that after 1 week a plant is 6 cm tall, after 3 weeks it is 10 cm tall and after 5 weeks it is 14 cm tall. What rule maps the number of weeks to the height in centimetres?



- 3 At granny's house for Sunday dinner, Tadhg and his cousins play a function-machine game. The rule is $\times 3 - 4$. If the input is 2, what is the output?



- 4 On the school sponsored cycle, pupils earn points for the laps they complete of the local cycle path. Completing 7 laps earns 43 points, completing 4 laps earns 28 points and completing 9 laps earns 53 points. What is the rule that maps the number of laps to the points earned?



- 5 Tadhg cycles laps of the school cycle path on a sponsored cycle. A function machine works out his points with the rule $\times 9 + 2$. He inputs 17 for the number of laps. What is the output?

