The equals sign means balance

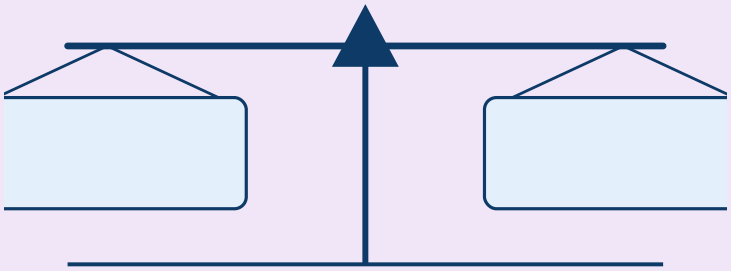
MODULE 10 · ALGEBRA — PATTERNS, RULES AND NUMBER SENTENCES ALGEBRA

HOW TO ANSWER TODAY

- **Property names.** Order swaps ($a + b = b + a$) → commutative. Brackets move ($(a+b)+c = a+(b+c)$) → associative. One spreads over two ($a(b+c) = ab+ac$) → distributive.
  $5 + 3 = 3 + 5$ → commutative · $2 \times (4 + 5) = 2 \times 4 + 2 \times 5$ → distributive
- **Solve for x.** Do the OPPOSITE operation to both sides. + becomes −; × becomes ÷.
  $x + 7 = 15 \rightarrow x = 15 - 7 = 8$ · $3x = 21 \rightarrow x = 21 \div 3 = 7$

TRY IT ON THE LINE

Use the balance to find the missing number that keeps both sides equal.



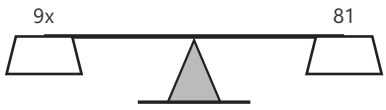
1. Work out the value that balances each number sentence.
2. Check by putting your number back into the sentence.
3. Write the matching fact-family sentence.

PRACTICE

1 Mr Ó Briain pins a maths chart on the 4th class noticeboard showing (9 × 9) × 4 = 9 × (9 × 4). Which property of operations does the equation show: commutative, associative, or distributive?

> Which property of operations does this equation show: $(9 \times 9) \times 4 = 9 \times (9 \times 4)$? (Choose: commutative, associative, or distributive.)

2



Find x so the scale balances.

Mr Ó Briain pins up 81 homework stickers on the classroom noticeboard, arranged in 9 equal rows with x stickers in each row. Solve $9x =$ 81 to find how many stickers are in each row.