

Fact families and the link between + and -

MODULE 10 · ALGEBRA — PATTERNS, RULES AND NUMBER SENTENCES

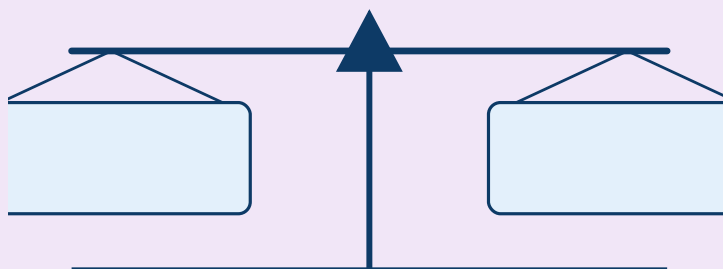
ALGEBRA

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** Cian and his sister Aoife are checking their maths homework at the kitchen table. Aoife says that $(7 \times 9) \times 2 = 7 \times (9 \times 2)$ without doing the sum. Which property of operations is she using: commutative, associative, or distributive?

Which property of operations does this equation show: $(7 \times 9) \times 2 = 7 \times (9 \times 2)$? (Choose: commutative, associative, or distributive.)

- 2 Mr Ó Briain pins a maths chart on the 4th class noticeboard showing $(9 \times 9) \times 4 = 9 \times (9 \times 4)$. 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.)