Properties of operations and the distributive law

MODULE 10 · ALGEBRA — PATTERNS, EXPRESSIONS AND EQUATIONS 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

STRETCH PROBLEMS

1. At granny's house for Sunday dinner, Saoirse explains to her younger cousin how $7 \times (4 + 10) = 7 \times 4 + 7 \times 10$ must be true without working out either side. Which property of operations is she showing: commutative, associative, or distributive?

   > Which property of operations does this equation show: $7 \times (4 + 10) = 7 \times 4 + 7 \times 10$? (Choose: commutative, associative, or distributive.)

2. On Monday morning, Master Ó Briain is checking the roll in 5th class. He notices that the equation $(9 \times 9) \times 4 = 9 \times (9 \times 4)$ is written on the whiteboard from Friday's maths lesson. Which property of operations does this equation show: commutative, associative, or distributive?

3. Mr Ó Briain is sorting the classroom store and writes this on the board: $(7 \times 9) \times 2 = 7 \times (9 \times 2)$. He asks 5th class which property of operations it shows. Is it the commutative, associative, or distributive property?

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