

Properties of operations: commutative, associative, distributive

MODULE 8 · ALGEBRA — PATTERNS, EXPRESSIONS AND EQUATIONS ALGEBRA

HOW TO ANSWER TODAY

- **Property names.** Order swaps $(a + b = b + a) \rightarrow$ commutative. Brackets move $((a+b)+c = a+(b+c)) \rightarrow$ associative. One spreads over two $(a(b+c) = ab+ac) \rightarrow$ distributive.
 $5 + 3 = 3 + 5 \rightarrow$ commutative $2 \times (4 + 5) = 2 \times 4 + 2 \times 5 \rightarrow$ 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 the school tour to the Cliffs of Moher, 5th class buy tickets for 9 pupils and snack packs for 2 pupils, with each ticket and each snack pack costing €7. Niamh writes the total cost as $7 \times (9 + 2) = 7 \times 9 + 7 \times 2$. Which property of operations does her equation show: commutative, associative, or distributive?

- 3 Saoirse watches the classroom bird-feeder for 9 days. Each day she counts 9 finches and 14 sparrows visiting the feeder. To work out the total visits, she writes $9 \times (9 + 14) = 9 \times 9 + 9 \times 14$ in her maths copy. Which property of operations does this equation show: commutative, associative, or distributive?

- 4 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.)

- 5 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?



x y



ALGEBRA



x y

