

Simplifying simple expressions

MODULE 10 · ALGEBRA — PATTERNS, EXPRESSIONS AND EQUATIONS

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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.
- **Letter expressions.** A letter stands for a number. Swap the letter for its value, then work out the answer.

If $n = 3$, then $2n + 5 = 2 \times 3 + 5 = 11$

★ STRETCH PROBLEMS

- 1 Aoife is helping granny count the calves on the farm. She notices that doubling the total of 15 calves in one field and 9 in another is the same as doubling each group separately: $2 \times (15 + 9) = 2 \times 15 + 2 \times 9$. Which property of operations does this equation show: commutative, associative, or distributive?
- 2 The 3 forwards in Cian's hurling club each score 11 points from play and 5 from frees. The coach writes $3 \times (11 + 5) = 3 \times 11 + 3 \times 5$ on the whiteboard. Which property of operations does this equation show: commutative, associative, or distributive?
- 3 Tadhg is packing treat bags for a sleepover with 9 friends. Each bag needs 8 biscuits and 15 sweets, so the total can be worked out as $9 \times (8 + 15)$ or as $9 \times 8 + 9 \times 15$. Which property of operations does this equation show: commutative, associative, or distributive?
- 4 In art, 9 pupils each take 13 plain beads and 3 gold beads from the craft box. The total number of beads can be written as $9 \times (13 + 3) = 9 \times 13 + 9 \times 3$. Which property of operations does this equation show? (Choose: commutative, associative, or distributive.)
- 5 Aoife and her brother Tadhg each get n euro pocket money from Mum, who then adds an extra 3 euro for them to share. Their total is $2n + 3$. If $n = 2$, what is the value of $2n + 3$?



x y



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x y

