

Equivalent expressions ($3 + 3 + 3 = 3 \times 3$)

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

★ STRETCH PROBLEMS

- On sports day, Cian counts $5 + 5 + 5 + 5 + 5 + 5$ points from six relay teams. Eoin says that is the same as 5×7 . Is Eoin right? Answer yes or no, and say why.
 Are these two expressions worth the same? $5 + 5 + 5 + 5 + 5 + 5$ and 5×7 . Answer yes or no, and say why.
- On the school-bag rota, three pupils each carry 6 books, so Cian writes $6 + 6 + 6$ in his copy. Beside it he writes 6×4 . Are $6 + 6 + 6$ and 6×4 worth the same? Answer yes or no, and say why.
 Are these two expressions worth the same? $6 + 6 + 6$ and 6×4 . Answer yes or no, and say why.
- Aoife is making sandwiches for the 3rd class picnic. She counts them as $7 + 7 + 7 + 7 + 7 + 7$, but her friend Cian says it is quicker to write 7×6 . Are these two ways worth the same number of sandwiches? Answer yes or no, and say why.
- In the school canteen, Tadhg looks at two ways of totting up the same items: $5 + 11$ and 5×11 . Are these two expressions worth the same? Answer yes or no, and say why.
- At Camogie training, Aoife sets out 9 rows of 3 cones and works out 9×3 . Róisín instead lines up 9 cones and then 3 more, working out $9 + 3$. Are these two expressions worth the same? Answer yes or no, and say why.