

Properties of operations – order and inverse links

WHAT THIS LESSON TEACHES

Swapping the order of numbers you add or multiply does not change the answer. Also, one operation can undo another: subtraction undoes addition, and division undoes multiplication.

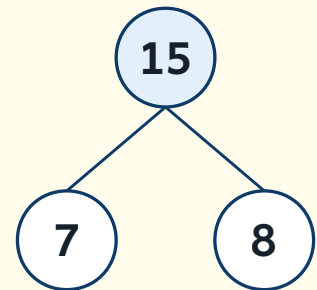
→ $4 + 9 = 13$ and $9 + 4 = 13$

→ $8 + 6 = 14$, so $14 - 6 = 8$

MODEL THIS ON THE BOARD

ORDER AND INVERSE WITH $7 + 8$

- 1 The bond shows $7 + 8 = 15$.
- 2 Swap the order: $8 + 7$ also equals **15**.
- 3 Subtraction undoes it: $15 - 8 = 7$, so write $7 + 8 \leftrightarrow 15 - 8$.



DISCUSSION STARTER

REFLECT

When does knowing that order does not matter in addition or multiplication save you time?

ANSWER KEY

a) 6

b) 3

Q1: $5 + 8$

a) Always — Order does not change a sum, so both make 13.

b) Always — Order does not change a product, so both make 15.

c) Never — Order matters in subtraction, so $10 - 4 = 6$ but $4 - 10$ does not.

d) Always — Taking the added number back off returns the number you started with.

EXTENSION SHEET · STRETCH ANSWERS

S1: associative property

S2: commutative property

S3: associative property

S4: associative property

S5: $x = 11$