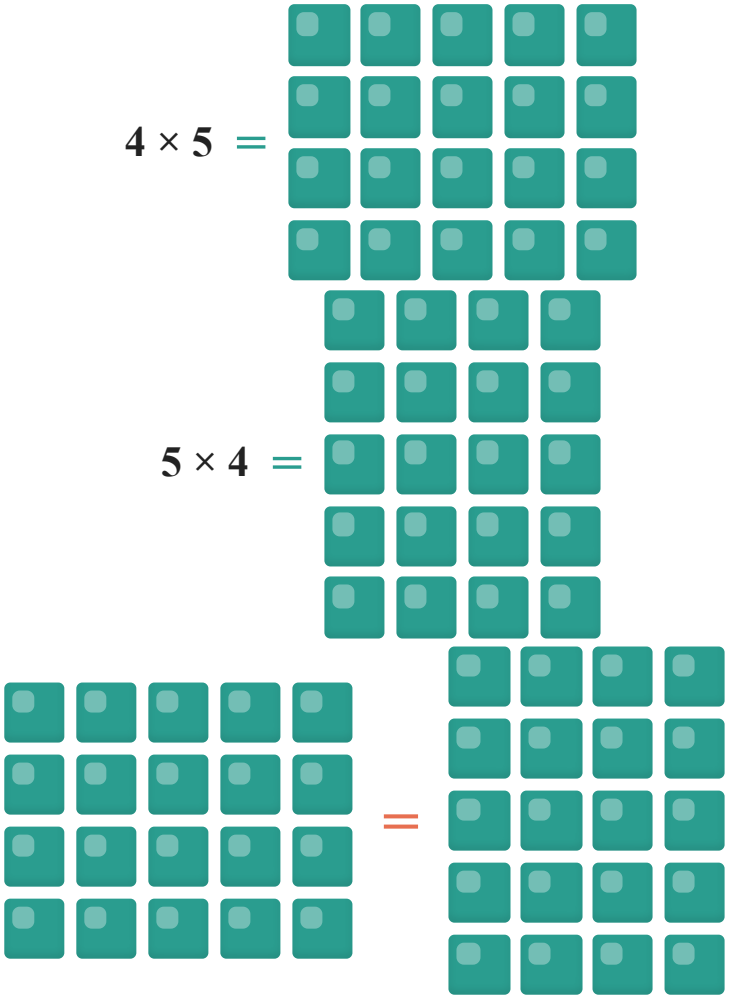
7. Properties of Operations

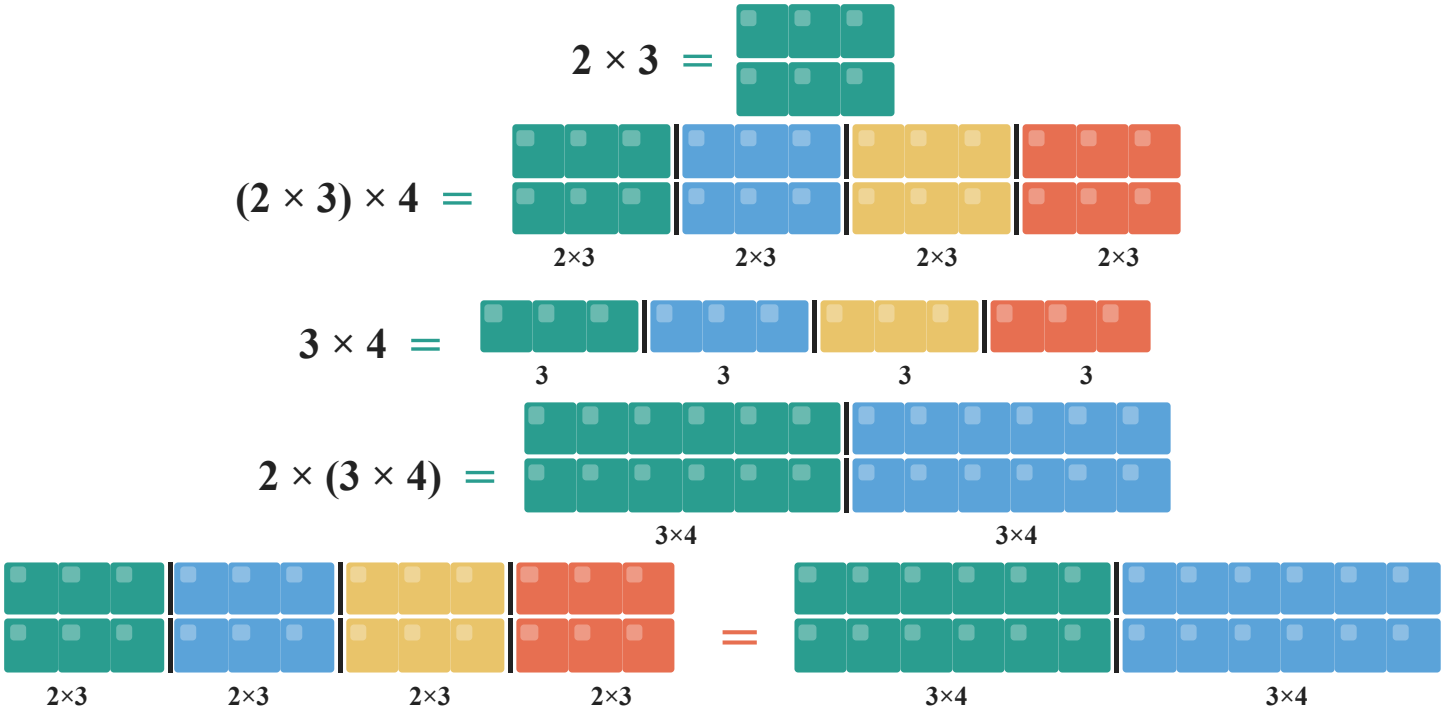
Proof 1: Commutative Property of Multiplication



↻ Rotate 90° to match perfectly

$$\therefore\ 4 \times 5 = 5 \times 4 = 20$$

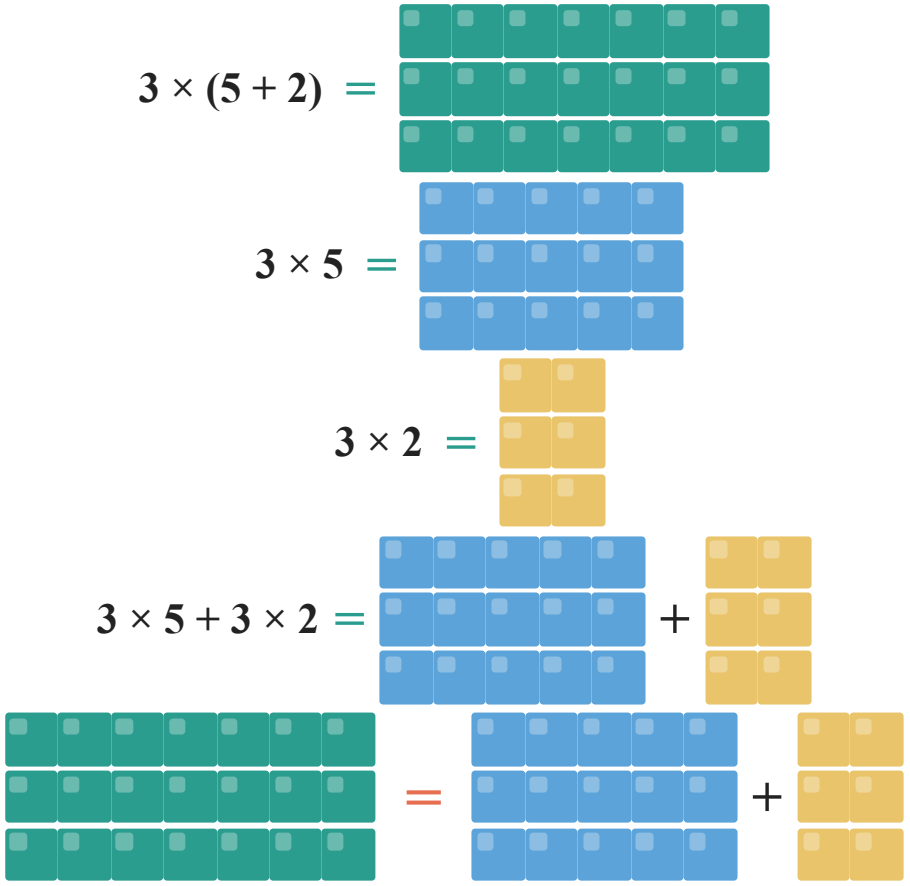
Proof 2: Associative Property of Multiplication



Two large rectangles are identical: 2 rows × 12 columns

$$\therefore (2 \times 3) \times 4 = 2 \times (3 \times 4)$$

Proof 3: Distributive Property of Multiplication



Put together = 3 rows × 7 columns, same as the rectangle on the left

$$\therefore\ 3 \times (5 + 2) = 3 \times 5 + 3 \times 2 = 21$$

7. Properties of Operations

Exercise: Using Properties of Operations

d)

$$6 \times 8 = 8 \times 6 = \square$$

e)

$$(5 \times 2) \times 3 = 5 \times (2 \times 3) = \square$$

f)

$$4 \times (3 + 6) = 4 \times 3 + 4 \times 6 = \square$$