

# Properties of Addition & Multiplication

Commutative Property – switching the order of two numbers being added or multiplied does not change the result.

Example:  $100 + 8 = 8 + 100$   
 $200 \times 8 = 8 \times 200$

Distributive Property – the product of a number and a sum is equal to the sum of the individual products of the addends and the number.

Example:  $10 \times (50 + 3) = (10 \times 50) + (10 \times 3)$

Associative Property – the order that numbers are grouped in addition and multiplication does not affect the result.

Example:  $(2 + 10) + 6 = 2 + (10 + 6)$   
 $2 \times (10 \times 6) = (2 \times 10) \times 6$

Identity Property for Addition – adding 0 to a number leaves the number unchanged. (We call 0 the additive identity).

Example:  $88 + 0 = 88$

Identity Property for Multiplication – multiplying any number by 1 leaves the number unchanged. (We call 1 the multiplicative identity).

Example:  $99 \times 1 = 99$

The Zero Property of Multiplication – multiplying any number by 0 gives 0.

Example:  $0 \times 1003 = 0$