4 Properties of Addition

Commutative Property: Changing the order of the numbers that you add does not change the sum.

\[
2 + 3 = 3 + 2
\]

Commutative Property of Addition

\[
a + b = b + a
\]

\[
6 + 3 = 3 + 6
\]

Identity Property of Addition: Adding zero (0) to a number does not change the sum.

Identity Property of Addition

\[
a + 0 = a
\]

\[
8 + 0 = 8
\]
Associative Property of Addition: Changing the numbers that are grouped together does not change the total of an addition problem.

\[(6 + 3) + 4 = 6 + (3 + 4)\]

\[A + (B + C) = (A + B) + C\]

**Example:**
\[4 + (1 + 7) = (4 + 1) + 7\]
\[12 = 12\]

Equality Property of Addition: Both sides of the equal sign add up to the same number; they are “balanced.”

\[4 + 8 = 3 + 9\]
\[7 + x = 5 + 4 \quad (x = 2)\]

\[6 + 3 + 2 = \_\_\_ + 7\]
(You would put a 4 in the blank)