



# ADDITION & SUBTRACTION

**Addition** combines quantities together. With whole numbers, this is taking at least two numbers and ‘merging’ them into one, then counting the result. (for example,  $4 + 3 = 7$ ). The result of adding numbers is called the *sum*.

When adding more than two numbers, the order in which the numbers are added does not matter:  $4 + 3 + 5 = 12$  just as  $5 + 4 + 3 = 12$ .

Longer lists of whole numbers can also be added together.

$$1 + 6 + 2 + 7 + 5 + 4 + 8 + 1 = 34$$

When adding many numbers together, it’s often easier to group some of the numbers together into smaller ‘equations,’ determine the sums of each of those equations, and then add the sums together. Let’s practice this on the above example.

$$\begin{aligned} &1 + 6 + 2 + 7 + 5 + 4 + 8 + 1 \\ &(1 + 6) + (2 + 7) + (5 + 4) + (8 + 1) \\ &\quad (7 + 9) + (9 + 9) \\ &\quad\quad 16 + 18 \\ &\quad\quad\quad 34 \end{aligned}$$

**Subtraction** is taking one quantity away from another. The expression  $4 - 3$  means that 3 must be taken away from 4. So,  $4 - 3 = 1$ . The result of subtracting numbers is called the *difference*.

Unlike with addition, *order does matter* since subtraction is taking one specific quantity away from another (rather than combining two quantities together):  $4 - 3 = 1$ , but  $3 - 4$  is not equal to 1.

In order to subtract a series of numbers, it’s best to subtract them in order.

$$\begin{aligned} &9 - 5 - 2 - 1 \\ &4 - 2 - 1 \\ &2 - 1 \\ &1 \end{aligned}$$

$$\begin{aligned} &39 - 2 - 17 - 7 \\ &37 - 17 - 7 \\ &20 - 7 \\ &13 \end{aligned}$$