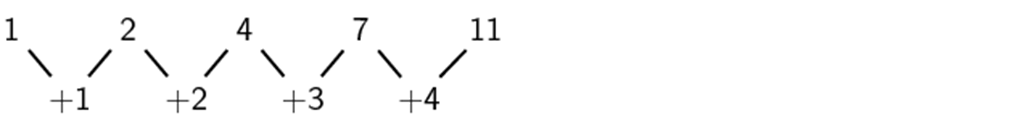
**Quadratic sequence**

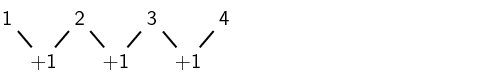
A quadratic sequence is a sequence of numbers in which the second difference between any two consecutive terms is constant.

Consider the following example: 1; 2; 4; 7; 11;…

The **first difference** is calculated by finding the difference between consecutive terms:



**First difference**

The second difference is obtained by taking the difference between consecutive first differences:

**Second difference**

We notice that the second differences are all equal to 1. Any sequence that has a common second difference is a **quadratic sequence**.

**NB:** It is important to note that the first differences of a quadratic sequence form a sequence. This sequence has a constant difference between consecutive terms. In other words, a linear sequence results from taking the first differences of a quadratic sequence.

**Exercise 1**

Determine the second difference between the terms for the following sequences:

1. 5 ; 20 ; 45 ; 80 ;…
2. 0 ; -6 ; -16 ; -30;…