

Quadratic Sequences

Quadratic sequences are ordered sets of numbers that follow a rule based on the sequence $n^2 = 1, 4, 9, 16, 25, \dots$ (the **square numbers**).

 **Example**

4, 7, 12, 19, 28

+3 +5 +7 +9

+2 +2 +2

The first differences are not equal.
The **second differences** for this sequence are **equal** - we are adding 2 each time.

second difference $\div 2$

This sequence is the square numbers with 3 added to each term, so its n th term rule is $n^2 + 3$

$$1n^2 = 1, 4, 9, 16, 25, \dots$$

$\downarrow +3$

$$n^2 + 3 = 4, 7, 12, 19, 28, \dots$$