Hillcrest Mathematics Knowledge Organiser

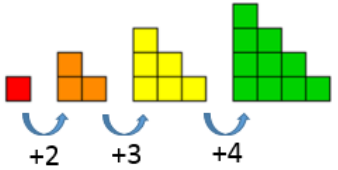
14 - Basic Sequences

Special sequences (you need to learn)

Square Numbers: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144… (a square number is the answer you get when you multiple a number by itself). $3^2 = 3 \times 3 = 9$

Cube numbers: 1, 8, 27, 64, 125, 169, 196, 216, 279, 1000… (a cube number is the answer you get when you multiply a number by itself 3 times). $5^3 = 5 \times 5 \times 5 = 125$

Triangular number: 1, 3, 6, 10, 15, 21, 28, 36, 45, 55… (The difference between terms increases by 1 each time)



Write a sequence given the term to term rule.

You will always be given the staring number then the rule. E.g. Start at 3 add 4 each time.

3, 7, 11, 15…

+ 4 + 4 + 4

Write a sequence given the position to term rule

This will help you find terms within the sequence such as the 100th term, without having to write out the whole sequence.
It shows you what to do with the position number to get the term number.
E.g. If the rule is 2n + 7

(**1** x 2) + 7 = 9 (**2** x 2) + 7 = 11 (**3** x 2) + 7 = 13

Find the rule for a number sequence

If you add or subtract the same number to get from one term to the next, it is known as an arithmetic sequence.
If you multiply or divide by the same number to get from one term to the next, it is known as a geometric sequence.
Don't just look at the rule from the 1st to the 2nd term, check it is the same from the 2nd to 3rd also.

Linked Prior Topics

Function machines,
patterns with shapes.

Vocabulary

Position Term
Sequence
Arithmetic/Geometric
Rule
Repeated
Pattern
Cube
Square
Triangular

Linked Future Topics

Finding the nth term rule for a linear sequence, finding the nth term rule for a quadratic sequence, using sequences to solve problems.