

## Goals



By the end of this week, you will:

- General Patterns (concepts common to all patterns)
- Notation used in the unit
- Arithmetic Progressions (nth term, sum to nth term, using both graphical and algebraic representations, applications)

## Theoretical Components

### Textbook Resource:

- Maths Quest Chapter 5

### Knowledge Checklist:

- Understanding arithmetic sequences

### Online Resources:

- <https://www.mathsisfun.com/algebra/sequences-series.html>
- [https://www.varsitytutors.com/hotmath/hotmath\\_help/topics/arithmetic-sequences](https://www.varsitytutors.com/hotmath/hotmath_help/topics/arithmetic-sequences)

### Sequences and Series

#### Arithmetic Sequences

$$nth \text{ Term: } a_n = a_1 + (n-1)d$$

$$\text{Sum: } S_n = \frac{n}{2}(a_1 + a_n) \text{ or } S_n = \frac{n}{2}[2a_1 + (n-1)d]$$

#### Geometric Sequences

$$nth \text{ Term: } a_n = a_1 r^{n-1}$$

$$\text{Sum: } S_n = \frac{a_1(1-r^n)}{1-r} \quad S_\infty = \frac{a_1}{1-r}$$

## Practical Components

### Resources:

Make notes on the following chapters and websites:  
Chapter 5 of Maths Quest (pdf – Google Classroom)

- 5A - Recognition of Arithmetic Sequences
- 5B - Finding the terms of an Arithmetic Sequences
- 5C - The sum of a given number of terms of an Arithmetic Sequences

### Do the following questions:

Organise your solutions neatly in your exercise book.

Chapter 5 of Maths Quest 12 Further Maths (pdf – Google Classroom)

- 5A: 9, 10, 12, 14, 15
- 5B: 1a, 1f, 2a, 2c, 3a, 3b, 4, 7, 9, 14, 18, 20
- 5C: 1a, 4a, 4d, 6, 14, 17-19

## Investigation

Make sure you submit your assignment by  
COB Monday 12/08/24.

## Other

Make sure you submit your assignment by COB 12/08/24.