

# Sequences and Series

Kh notes

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# 1 Introduction (Number Sequences)

## 2 Arithmetic Sequences

### 2.1 Ex 5B.1

### 2.2 Ex 5B.2

## 3 Geometric Sequences

### 3.1 Ex 5C

## 4 Growth and Decay

Starter Questions:

1. A school had 1200 students and a year later this has increased by 8% . How many students are now in the school?
2. Mary buys a car for \$40,000 and in one year its price has decreased by 12%. What is the value of it now?
3. The population of Sydney is currently 5.2 million. If it increases at a rate of 1.25% annually, what will the population be after 3 years?

### 4.1 Ex 5D

## 5 Financial Mathematics

### 5.1 Compound Interest

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$$u_n = u_0(1 + i)^n$$

$u_0$  Initial Investment (Principal)

$i$  Interest rate per compounding period

$n$  Number of periods

$u_n$  The final value of the investment

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5.1.1 Ex 5E.1

## 5.2 Inflation

5.2.1 Ex 5E.2

## 5.3 Real Value of an Investment

5.3.1 Ex 5E.3

## 5.4 Depreciation

5.4.1 Ex 5E.4

## 5.5 Using Financial Models

5.5.1 Ex 5E.5

# 6 Series

## 6.1 Sigma Notation

6.1.1 Ex 5F

## 6.2 Arithmetic Series

6.2.1 Ex 5G

## 6.3 Finite Geometric Series

6.3.1 Ex 5H

## 6.4 Infinite Geometric Series

6.4.1 Ex 5I