

Using Sequences to Solve Problems

Starter

1. **(Review of last lesson)**

The sum to infinity of a convergent geometric series is equal to the sum to infinity of the squares of its terms. If the first term of the geometric series is $\frac{1}{4}$, find its common ratio.

2. When a baby is born, £3000 is invested in an account with a fixed interest rate of 2.8% per year.

- (a) What will the account be worth at the end of the 7th year?
- (b) After how many full years will the account have doubled in value?

Notes

Decide whether a problem involves an arithmetic or geometric series.
Write down the formula at the start to help.

E.g. 1 A car depreciates by 15% each year. After 10 years it is worth £2362. How much was it worth when new?

- E.g. 2**
- (a) Katie invests £6000 at an annual interest rate of 6%. Find the value of the investment after 10 years.
 - (b) Olivia invests £6000 on the 1st January each year. Interest of 6% is paid on the whole amount in the bank on 31st December each year. Calculate the value of the investment at the end of 10 years and the amount of interest she has gained.

Video: [Investment problems](#)

[Geometric progressions EQ 1](#)

[Geometric progressions EQ 2](#)

[Solutions to Starter and E.g.s](#)

Exercise

p87 4H Qu 1-11