

Goals



This week:

- use a general first-order linear recurrence relation to generate the terms of a sequence and to display it in both tabular and graphical form
- recognise that a sequence generated by a first-order linear recurrence relation can have a long term increasing, decreasing or steady-state solution

Theoretical Components

Resources:

For this week the theory work is in the *PDF file*:
Week 7 Notes & Exercises

Sum to infinity and the concept of convergence

<https://www.youtube.com/watch?v=PSA6mr0oLzk>

Sum of a geometric series:

$$S_n = \frac{a(r^n - 1)}{r - 1}; r \neq 1$$

Sum to infinity:

$$S_\infty = \frac{a}{1 - r}$$

Knowledge Checklist

- Adding terms of a geometric series
- Simultaneous equations
- For r between -1 and 1 as n gets bigger, r^n gets smaller
- Adding an infinite number of terms when $-1 < r < 1$

Practical Components

There are questions to be answered in the booklet *Week 7 Notes & Exercises*

Investigation

On HawkerMaths and attached to this week's work

On-line Quiz

None