

REVIEW SET 5C

- A sequence is defined by $u_n = 68 - 5n$.
 - Prove that the sequence is arithmetic.
 - Find u_1 and d .
 - Find the 37th term of the sequence.
 - State the first term of the sequence which is less than -200 .
- Show that the sequence $3, 12, 48, 192, \dots$ is geometric.
 - Find u_n and hence find u_9 .
- Find the general term of the arithmetic sequence with $u_7 = 31$ and $u_{15} = -17$. Hence, find the value of u_{34} .
- Consider the sequence $24, a, 6, \dots$
Find the value of a if the sequence is: **a** arithmetic **b** geometric.
- Find the 10th term of the sequence:
 - $32, 25, 18, 11, \dots$
 - $\frac{1}{81}, \frac{1}{27}, \frac{1}{9}, \frac{1}{3}, \dots$
- There were originally 3000 koalas on Koala Island. Since then, the population of koalas on the island has increased by 5% each year.
 - How many koalas were on the island after 3 years?
 - How long will it take for the population to exceed 5000?
- Find the formula for u_n , the general term of:
 - $86, 83, 80, 77, \dots$
 - $\frac{3}{4}, 1, \frac{7}{6}, \frac{9}{7}, \dots$
 - $100, 90, 81, 72.9, \dots$

Hint: One of these sequences is neither arithmetic nor geometric.
- Find the first term of the sequence $5, 10, 20, 40, \dots$ which exceeds 10 000.
- $-1, k, k^2 - 7$ are consecutive terms of an arithmetic sequence. Find k .

- Each year, a school manages to use only 90% as much paper as the previous year. In the year 2000, they used 700 000 sheets of paper.

- Find how much paper the school used in the years 2001 and 2002.
- How much paper did the school use in total in the decade from 2000 to 2009?



- Find the final value of a compound interest investment of €8000 after 7 years at 3% p.a. with interest compounded annually.
- Ned would like to have £15 000 in 3 years' time to install a swimming pool. His bank pays 4.5% p.a. interest, compounded half-yearly. How much does Ned need to deposit now?
- A motorbike, purchased for £2300, was sold for £1300 after 4 years. Calculate the average annual rate of depreciation.

