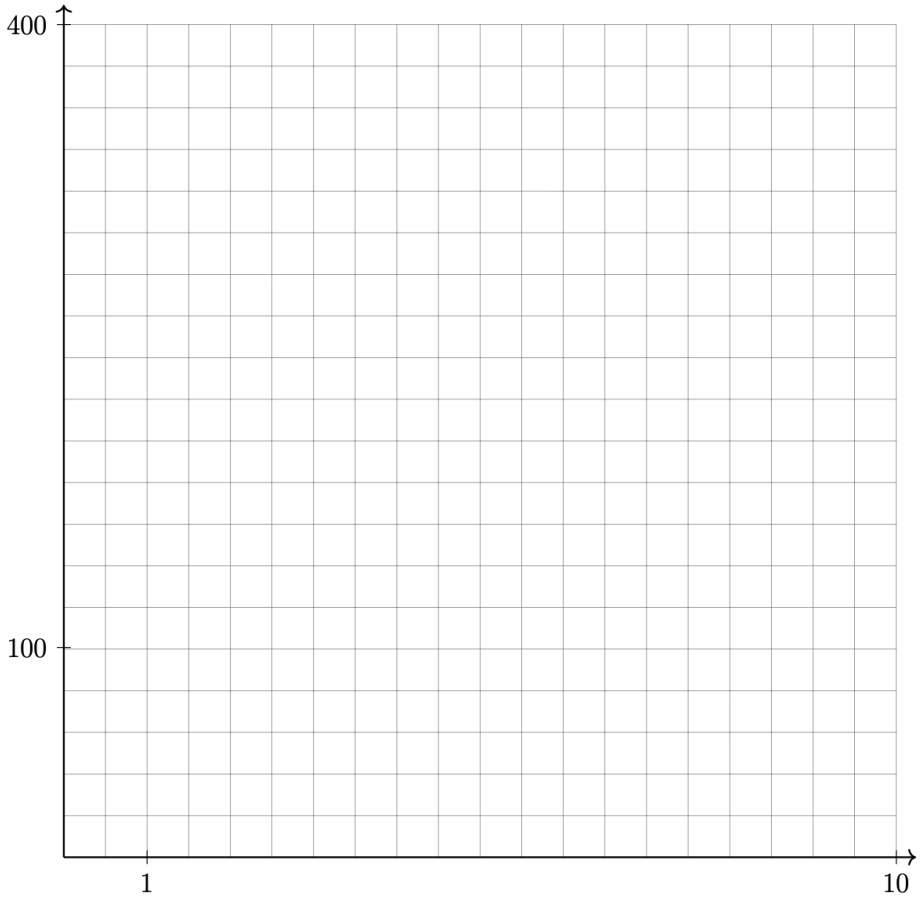
La Scuola d'Italia / Huson / IB Math: Sequences

23 October 2025

1.12 Classwork: Series; due Tuesday 28 October

1. Given a geometric sequence with $u_1 = 9$ and $r = \frac{4}{3}$
    1. Find u_8. [2 marks]
    2. Find S_8, the sum of the first eight terms of the sequence. [2]
    3. $S_k \approx 825.37$. Find k algebraically.[2]
2. Three consecutive terms of a geometric sequence are $x - 2$, 6, and $x + 7$. Find the possible values of x.
3. Find the value of each of the following, as an integer. (no calculator)
    1. $\log_6 36$.
    2. $\log_6 4 + \log_6 9$.
    3. $\log_6 2 - \log_6 12$.
4. Solve $\log_2 x + \log_2(x - 2) = 3$, for $x > 2$.
5. Solve the equation $e^x = 4 \sin x$, for $0 \leq x \leq 2\pi$. (calculator allowed)
6. The expression $(x + a)(x + b)$ can not be written as
    1. $a(x + b) + x(x + b)$
    2. $x^2 + (a + b)x + ab$
    3. $x^2 + abx + ab$
    4. $x(x + a) + b(x + a)$
7. Graph $y = 400(.85)^{2x} - 6$ on the set of axes below.


400
100
1
10