La Scuola d'Italia / Huson / IB Math: Sequences First & last name:
23 October 2025 Grade:

1.12 Classwork: Series; due Tuesday 28 October

1. Given a geometric sequence with $u_1 = 9$ and $r = \frac{4}{3}$

   (a) Find u_8. [2 marks]

   (b) Find S_8, the sum of the first eight terms of the sequence. [2]

   (c) $S_k \approx 825.37$. 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.

   [6]

3. Find the value of each of the following, as an integer. (no calculator)

   (a) $\log_6 36$.

   [2]

   (b) $\log_6 4 + \log_6 9$.

   [2]

   (c) $\log_6 2 - \log_6 12$.

   [3]

4. Solve $\log_2 x + \log_2(x - 2) = 3$, for $x > 2$.

   [7]

5. Solve the equation $e^x = 4\sin x$, for $0 \leq x \leq 2\pi$. (calculator allowed)

[5]

6. The expression $(x + a)(x + b)$ can not be written as
   (a) $a(x + b) + x(x + b)$
   (b) $x^2 + (a + b)x + ab$
   (c) $x^2 + abx + ab$
   (d) $x(x + a) + b(x + a)$

7. Graph $y = 400(.85)^{2x} - 6$ on the set of axes below.