AS／GS 數列與級數練習 / AS/GS sequences and series

SketchMath 原創中英練習 / Original bilingual practice · Not official HKEAA papers

分清第 n 項與前 n 項總和；無窮等比級數須 |r| < 1。
Distinguish the nth term from the sum of n terms; an infinite geometric sum requires |r| < 1.

1.

等差數列首項 3、公差 4，求第 10 項。
An arithmetic sequence has first term 3 and common difference 4. Find its 10th term.

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2.

求同一等差數列的前 10 項總和。
Find the sum of the first 10 terms of the same arithmetic sequence.

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3.

等比數列首項 8、公比 1/2。求無窮和與前 4 項和。
A geometric sequence has first term 8 and ratio 1/2. Find its infinite sum and sum of the first 4 terms.

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答案及詳解 / Worked solutions

1.

1. $a_{10} = 3 + 9 \times 4$。
   $a_{10} = 3 + 9 \times 4$.
2. 注意共有 9 次增加，不是 10 次。
   There are 9 increments, not 10.

39。
39.

2.

1. $S_{10} = 10(3 + 39)/2$。
   $S_{10} = 10(3 + 39)/2$.
2. 總和與第 10 項是不同的量。
   The sum is different from the 10th term.

210。
210.

3.

1. $|1/2| < 1$，故 $S\infty = 8/(1 - 1/2) = 16$。
   $|1/2| < 1$, so $S\infty = 8/(1 - 1/2) = 16$.
2. $S_4 = 8(1 - (1/2)^4)/(1 - 1/2) = 15$。
   $S_4 = 8(1 - (1/2)^4)/(1 - 1/2) = 15$.

無窮和 16；前 4 項和 15。
Infinite sum 16; first 4 terms sum to 15.