

SEQUENCE SERIES

- 2005B 11. The first term of a sequence is 2005. Each succeeding term is the sum of the cubes of the digits of the previous term. What is the 2005th term of the sequence?
- (A) 29 (B) 55 (C) 85 (D) 133 (E) 250

- 2008B 11. Suppose that (u_n) is a sequence of real numbers satisfying $u_{n+2} = 2u_{n+1} + u_n$, and that $u_3 = 9$ and $u_6 = 128$. What is u_5 ?
- (A) 40 (B) 53 (C) 68 (D) 88 (E) 104
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- 2008B 13. For each positive integer n , the mean of the first n terms of a sequence is n . What is the 2008th term of the sequence?
- (A) 2008 (B) 4015 (C) 4016 (D) 4,030,056 (E) 4,032,064
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- 2013B 13. Jo and Blair take turns counting from 1 to one more than the last number said by the other person. Jo starts by saying "1", so Blair follows by saying "1, 2". Jo then says "1, 2, 3", and so on. What is the 53rd number said?
- (A) 2 (B) 3 (C) 5 (D) 6 (E) 8

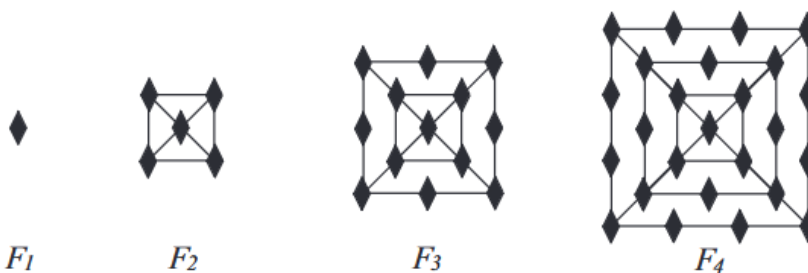
2017A

13. Define a sequence recursively by $F_0 = 0$, $F_1 = 1$, and $F_n =$ the remainder when $F_{n-1} + F_{n-2}$ is divided by 3, for all $n \geq 2$. Thus the sequence starts $0, 1, 1, 2, 0, 2, \dots$. What is $F_{2017} + F_{2018} + F_{2019} + F_{2020} + F_{2021} + F_{2022} + F_{2023} + F_{2024}$?

(A) 6 (B) 7 (C) 8 (D) 9 (E) 10

2009A

15. The figures F_1 , F_2 , F_3 and F_4 shown are the first in a sequence of figures. For $n \geq 3$, F_n is constructed from F_{n-1} by surrounding it with a square and placing one more diamond on each side of the new square than F_{n-1} had on each side of its outside square. For example, figure F_3 has 13 diamonds. How many diamonds are there in figure F_{20} ?



(A) 401 (B) 485 (C) 585 (D) 626 (E) 761