1

In a certain sequence, every term after the first is determined by multiplying the previous term by an integer constant greater than 1. If the fifth term of the sequence is less than 1000, what is the maximum number of non-negative integer values possible for the first term?

A) 60
B) 61
C) 62
D) 63
E) 64

2

A square is drawn by joining the midpoints of the sides of a given square. A third square is drawn inside the second square in the way and this process is continued indefinitely. If a side of the first square is 4 cm. determine the sum of areas of all squares?

A. 18
B. 32
C. 36
D. 64
E. None

3

The sequence a(1), a(2), …, a(n), … is such that a(n)=4a(n–1) –3 for all integers n>1. If a(3)=x, then a(1)=?

A. 4x–3
B. 16x–15
C. (x+3)/4
D. (x+3)/16
E. (x+15)/16

4

In a certain sequence, the term x_n is given by the formula $x_n = 2*x_{n-1} - \frac{1}{2}*x_{n-2}$ for all $n \geq 2$. If $x_0 = 3$ and $x_1 = 2$, what is the value of x_3?

(A) 2.5
(B) 3.125
(C) 4
(D) 5
(E) 6.75

5

How many terms of the series r 3^(1/2) + 3 + 3*(3^(1/2)) + 9 + ... will form 120 + 121*(3^(1/2))?

A. 3
B. 4
C. 5
D. 6
E. 9