

I. Find the first five terms of each given recursive sequence. Write answer as a sequence.

1.) $a_{n+1} = 6 - a_n ; a_1 = -4$	2.) $a_{n+1} = 2a_n + 7 ; a_1 = -3$	3.) $a_{n+1} = a_n - 3n + 1 ; a_1 = 5$
4.) $a_n = 4a_{n-1} - 2 ; a_1 = 2$	5.) $a_n = 3(a_{n-1} - 2) ; a_1 = 7$	6.) $a_n = 4 - (a_{n-1} + 3) ; a_1 = -2$
7.) $a_{n+1} = a_n - a_{n-1} ;$ $a_1 = -1 , a_2 = -1$	8.) $a_{n+1} = -4a_n + a_{n-1} ;$ $a_1 = 3 , a_2 = -5$	9.) $a_n = 2a_{n-1} + 3a_{n-2} ;$ $a_1 = 1 , a_2 = 2$

II. Complete each problem about recursive and/or explicit sequences.

10.) Write the recursive formula: $1, 3, 6, 10, 15, \dots$	11.) Iteration is the process of composing a function with itself. Using that idea, find the first 3 iterates (x_1, x_2, x_3) for $f(x) = 2x + 3$ where $x_0 = 1$.
12.) Given: $a_n = 2(3a_{n-1} + 5) - 10$ where $a_1 = 4$ Write the explicit formula.	13.) Given: $a_{n+1} = 5a_n + 3n - 1$ where $a_1 = -2$ Find: Sum of first 5 terms

III. Use recursive sequences or iterative functions to complete each word problem.

14.) The Cruz family is taking out a mortgage loan for \$100,000 to buy a house. Their monthly payment is \$678.79. The formula: $a_n = (1.006 \cdot a_{n-1}) - 678.79$ describes the balance left on the loan after n payments. Find the balance of the loan after the fourth payment.	15.) Rita has deposited \$1000 in a bank account. At the end of each year, the bank posts interest to her account in the amount of 5% of the balance. But the bank also takes out a \$10 annual fee. Find the balance in the account after 6 years.	16.) Iterating the function $C(x) = 1.06x$ gives the future cost of an item at a constant 6% inflation rate. Find the cost of a \$2,000 ring in five years.
---	---	---