

I. Find the first five terms of each given recursive 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.) $a_n = 4 a_{n-1} - 2 ; a_1 = 2$	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.) $a_{n+1} = -4 a_n + a_{n-1} ;$ $a_1 = 3 , a_2 = -5$	9.) $a_n = 2a_{n-1} + 3 a_{n-2} ;$ $a_1 = 1 , a_2 = 2$

II. Find the first three iterates (x_1 , x_2 , and x_3) of each function for the given initial value of x_0 .

10.) $f(x) = 9x - 2 ; x_0 = 2$	11.) $f(x) = 5 - 2x^2 ; x_0 = -1$	12.) $f(x) = 3x^2 - 3x + 2 ; x_0 = \frac{1}{3}$
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III. Use recursive sequences or iterative functions to complete each word problem.

13.) The Cruz family is taking out a mortgage loan for \$100,000 to buy a house. Their monthly payment is \$678.79. The recursive 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.	14.) Iterating the function $C(x) = 1.05x$ gives the future cost of an item at a constant 5% inflation rate. Find the cost of a \$2,000 ring in five years at 5% inflation.
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