1.   About 8 million Americans of all ages suffer from diabetes, a disease caused by the failure of the body to properly metabolize glucose. In order to help process glucose, some diabetics take injections of a medicine containing insulin. Once in the bloodstream, insulin begins breaking down into other chemicals and soon passes from the body. Insulin breaks down at the rate of about 5% of the amount present per minute.

   a. If 12 units of insulin are introduced into Marilyn's bloodstream, how many units of insulin will remain after 5 minutes?

   b. Write a recursive formula that represents this situation.

2.   The CHS cafeteria staff is monitoring the number of bags of Doritos that remain after each period of the day. There are 30 bags to be sold before school. Each period 80% of the bags remain and 10 additional bags are added to the number of bags that remain.

   The recursive formula that describes this situation is $\begin{array}{l} P_0 = 30 \\ P_n = .8P_{n-1} + 10 \end{array}$.

   a. Do the number of bags of Doritos appear to level off (or approach a limit)? Explain.

   b. The CHS staff ultimately only wants 25 bags of Doritos to remain of the shelf. If the initial amount of 30 and 80% remains the same, how many bags should be restocked?

3. Suppose you borrow money to buy a car and you make equal monthly payments at the end of each month to repay the loan. The amount you owe at the end of a month, in terms of the previous month's amount, is modeled by the recursion equation $A_n = 1.0125A_{n-1} - 223$.

   a. Explain the meaning of the 1.0125 and 223 in this situation.

   b. Complete the following table showing the amount of the loan at the end of each month. Give amounts to the nearest dollar.

Month	0	1	2	3	4	5
Amount of Loan ($)	8,000					

   c. At the end of what month will the loan be paid entirely?

   d. In order to pay the loan faster, you pay $266 per month. Write the recursion equation that models this situation. Then determine when the loan will be paid entirely. What will the amount of the final payment be? Explain or show your work.