

10. [9 points] A patient takes a drug in doses of 100 mg once every 24 hours. The half-life of the drug in the patient's body is 12 hours. Let D_n be the amount of the drug in the patient immediately after taking the n th dose of the drug. Be sure to include units.

a. [3 points] Find D_1 , D_2 and D_3 .

b. [4 points] Find a closed form expression (an expression that does not involve a long summation or a recursive formula) for D_n .

c. [2 points] What is $\lim_{n \rightarrow \infty} D_n$?