

Name: _____

Show work needed to justify your answer.

Date: _____

HW: # 20a: Math IBSL - Standard 20 - Applications of Arithmetic and Geometric Patterns

5 points

- 1 A high white blood cell count can indicate that the patient is fighting an infection. A doctor is monitoring the number of white blood cells in one of her patients after receiving antibiotics. The lab returns the following data.

Hour	0	12	24	36
White blood cells (cells mCL^{-1})	12 500	11 000	9680	8518.4

- a Create a general formula to model the patient's white blood cell count at any given time.
- b Use your general formula to calculate the number of white blood cells this patient will have after three days.
- c Discuss the limitations of your general formula.
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- 3 Half-life is the time required for a substance to decay to half of its original amount.
- a A radioactive isotope has a half-life of 1.23 years. Explain what this means.
- b Write a general formula to calculate the amount remaining of the substance.
- c Use your GDC to sketch a graph of this situation.
- d If you start with a 52-gram sample of the isotope, how much will remain in 7.2 years?