Name: _____

Radioactive Decay and Half-life

Problem:

To calculate how many years it takes certain substances to decay by the half-life theory.

Procedure:

1. Answer the questions as best as you can.
2. Don't forget to count half-lives carefully.
3. Make sure to keep units the same. (If you are dealing with grams, make sure you label your final answer in grams.)

Activity:

1. If you are given a 2,900-gram sample of Hydrogen, and hydrogen has a half-life of 2,450 years. Calculate the following:
    A. How much hydrogen is left after 19,600 years?

    B. How many half-lives must occur to reach 5.66 grams of hydrogen?

    C. How many half-lives must occur to reach 45.31 grams?

    D. How many years have passed for B? How many years have passed for C?

2. If you have a 2,300 gram sample of Uranium, calculate the following:
    A. What is the half-life of Uranium?

    B. What will be the ration of Uranium to lead after 4 half-lives?

    C. How many years is 4 uranium half-lives equal to?

    D. How many half-lives does it take to reach 71.875 grams?

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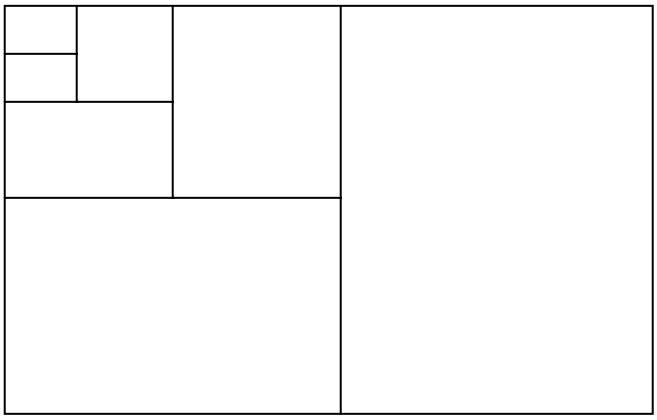
3. How many half-lives does the following diagram show?



4. If that were a 3,500-gram sample how much would be left?

5. If that sample had a half-life of 2.2 million years, how many years will have passed?