

Nuclear HW #1

name: \_\_\_\_\_

What is the half life for these isotopes?

1. cesium-137 \_\_\_\_\_

2. potassium-37 \_\_\_\_\_

3. nitrogen-16 \_\_\_\_\_

4. strontium-90 \_\_\_\_\_

5. iron-53 \_\_\_\_\_

6. If the half life of an unknown isotope is 27.4 sec and you start out with exactly 64.0 grams of this stuff , how much do you have left in 2 minutes and 17 seconds?  
\_\_\_\_\_

7. If you start out with exactly 64.0 grams of  $^{239}\text{Pu}$ , how much do you have left after nine half lives have past?  
\_\_\_\_\_

8. How long is four half lives of the nuclide Kr-85? \_\_\_\_\_

9. How long is three half lives of Tc-99? \_\_\_\_\_

Show the decay reactions for these radioisotopes.

10.  $^{198}\text{Au}$  \_\_\_\_\_

11.  $^{14}\text{C}$  \_\_\_\_\_

12.  $^{37}\text{Ca}$  \_\_\_\_\_

13. Skip this one

14.  $^{220}\text{Fr}$  \_\_\_\_\_

15.  $^{90}\text{Sr}$  \_\_\_\_\_

16. Rn-222 \_\_\_\_\_

For each listed nuclide determine the decay mode from table N, then show the decay reaction, as shown in the sample. Be sure to add the atomic number every time.

nuclide		decay reaction	decay mode
ex	$^{220}_{87}\text{Fr}$	$^{220}_{87}\text{Fr} \longrightarrow ^4_2\text{He} + ^{216}_{85}\text{At}$	$^4_2\text{He}$
1	$^3\text{H}$		
2	$^{53}\text{Fe}$		
3	$^{222}\text{Rn}$		
4	$^{90}\text{Sr}$		
5	$^{37}\text{K}$		
6	$^{239}\text{Pu}$		

Nuclear HW #3

name: \_\_\_\_\_

Draw a schematic diagram of a nuclear power plant, and add some labels and a few sentences explaining how it works.

Then, list several reasons that nuclear power is a good thing for the US to pursue, and a few reasons that nuclear power should be eliminated in our country.

Finally, write a paragraph choosing your opinion about using or stopping the use of nuclear energy in the US and use some facts to back up your thoughts.