**Chapter 7 Review** Name:

Skills Learned:

* Identifying isotopes and using the mass number and atomic number to find the number of neutrons in the nucleus.
* Identifying the types of nuclear decays and writing nuclear equations that demonstrate each.
* Calculating the quantity of a radioisotope that is left after a number of half-lives.
* Completing nuclear equations for fission or fusion reactions.

1. Complete the following chart on isotopes:

|  |  |  |  |
| --- | --- | --- | --- |
| Isotope | Mass  Number | Atomic  Number | Number of  Neutrons |
| Hydrogen-1 |  |  |  |
|  | 2 | 1 |  |
|  |  | 14 | 15 |
|  | 25 | 12 |  |
|  | 26 |  | 14 |

1. Complete the following chart on radioactive decays:

|  |  |  |  |
| --- | --- | --- | --- |
| Decay | Symbol | Electric  Charge | Penetrating  Power |
| Alpha |  |  |  |
| Beta |  |  |  |
| Gamma |  |  |  |

1. Complete the nuclear reaction equations:
2. Complete the following half-life chart:

|  |  |  |
| --- | --- | --- |
| Number of Half-Lives | Fraction of Parent Isotope Left | Percentage of Parent Isotope Left (%) |
| 0 | 1 | 100 |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |

1. Complete the half-life problems:
   1. The half-life of strontium-90 is 21.375 years. If we started with 60.0 grams of sample the sample has been left out for 64.125 years, how many grams of strontium-90 is left?
   2. A prehistoric tree once had 10.0 kg of carbon-14, but now only has 5.00 kg. If the half-life of carbon-14 is 5730 years, how old is this tree?
2. Complete each nuclear equation. Then state whether it is a fission reaction or a fusion reaction.

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