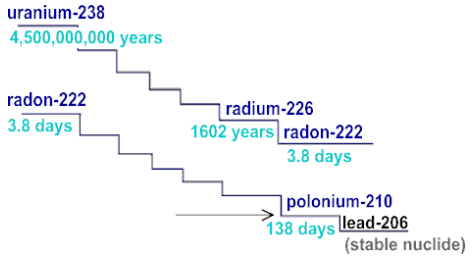
Chapter 18: Half Life



Half-Life

- The "_____" **(h)** is the time it takes for _____ of a radioactive substance to decay.

Half-Life

For example, suppose we had 20,000 atoms of a radioactive substance. If the half-life is 1 hour, how many atoms of that substance would be left ....

Time	#atoms remaining	% of atoms remaining

Half-Life Practice

1. What is the percentage of radioactive nuclei left after 3 half-lives pass?

Half-Life Practice

2. Gold-198 has a half-life of 2.7 days. How much of a 96 g sample of gold-198 will be left after 8.1 days?

Half-Life Practice

3. The half-life of Rn-222 is 3.823 day. If the original mass of a sample of this isotope is 0.20 g, how much of it remains after 7.646 days?

Half-Life Practice

4. Thallium-208 has a half-life of 3.053 min. How long will it take for 120.0 g to decay to 7.5 g?

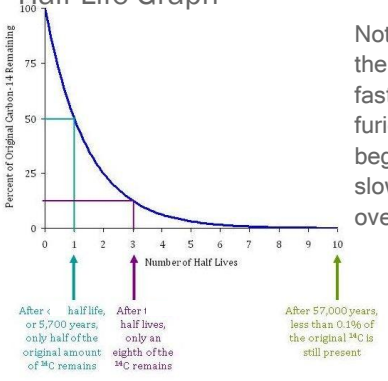
Half-Life Practice

5. Polonium-214 has a relatively short half-life of 164 seconds. How many seconds would it take for 8.0 g of this isotope to decay to 0.25 g?

Concept Check

Will the parent atom completely decay?

Half-Life Graph



Notice how the decays are fast and furious at the beginning and slow down over time

What is the half life of the Californium-252 isotope?