Packet #5 - Nuclear Chemistry
Reference Sheet

Balancing Nuclear Equations -- Extra Practice:

1) $^{60}_{28}Ni$ + [ ] ---> $^{1}_{0}n$ + $^{59}_{26}Fe$

2) Fr-223 changes into Fr-219 through how many α and β decays?

3) What daughter is produced when bismuth-210 undergoes α decay?

Half-Life Extra-Practice

1. How long will it take one mole of Au-195 to decay to one atom? (half-life = 186 days)

2. What percent of an Es-252 sample will decay in 4 years?

3. After 44 years, a 100.0 gram sample of Andersonium-210 has decayed down to 25.0 grams. What is its half-life?

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packet #5 Objectives
(know this for quiz)

- half-life calculations, with & without the equations (WS 5.4 & practice wkst)
- C-14: the process, how it works, how to calculate age of artifact, uses, etc... (WS 5.5)
- balancing nuclear equations, finding missing particle (WS 5.2)
- identify the types of reactions, identify types of particles (WS 5.1)
- difference between fusion & fission (real-life examples of each)
- definition of radioactivity (WS 5.1)
- results from nuclear radiation lab / which particle is most/least penetrating, most effective shield
- basic information from student presentations
- how radioactive elements can be used in medicine (WS 5.7)
- biological effects of radiation (WS 5.7)
- what happened at Bikini Island (radio Bikini video)
- accomplishments of Marie Curie (Curie video & web-site pictorial story)
- how nuclear power plants work, compared to coal plants (notes, Callaway video, WS 5.6)
- some examples of background radiation (radiation lab, class demos)
- miscellaneous uses of radioactivity in our everyday lives (class demos, WS 5.7)
- calculate energy in nuclear reactions using $E=mc^2$ (WS 5.7)