Atomic physics 2

1. What nucleus will be formed from nucleus $_{92}U^{235}$ after three α- and two β-transformations (β^-)?

2. Add missing terms (?) in the following nuclear reactions:

   a) $_{17}Cl^{35} + ? \rightarrow {}_{16}S^{32} + {}_2He^4$
   b) $_5B^{10} + ? \rightarrow {}_3Li^7 + {}_2He^4$
   c) $_3Li^6 + ? \rightarrow {}_4Be^7 + {}_0n^1$

3. How long will it take for half of the nuclei of a radionuclide to transform if its decay constant λ has the value $1.42 \cdot 10^{-11}$ s^{-1}?

4. The half-life of the Radium-226 is $T = 1602$ years. Find the time in which the total amount of not decayed atoms equals 0.1% of original amount.

HW: How much radiocarbon C-14 remains (expressed in %) in a sample after 25 000 years?