Half Life

- time for 1/2 of the nuclei in a radioactive sample to decay

$$N = N_o \left(1/2\right)^{t/T_{1/2}}$$

Ex.1   Radon 222 has a half life of 3.8 days. How long will it take to decay to 10%

Ex.2 $^{228}_{90}$Th has a half life of 1.913 years as it alpha decays.

(a) Write the decay reaction.

(b) If you have a 2.5g sample, how long will it take for it to decay to only 1.0g?

Activity- the number of decays per second
        - measured in Bequerel (Bq)

$$A = A_o \, (1/2)^{\, t/T_{1/2}}$$

http://www.colorado.edu/physics/2000/isotopes/radioactive_decay3.html

Ex. 3 A 1000 Bq source with a half life of 15 hours is placed into a monitoring container.
How long will it take the sample to decay to an activity of 125 Bq?