Half-Life

Equation:

(starting amount) x (1/2)number of half-lives = ending amount

1. The half-life of Zn-71 is 2.4 minutes. If one had 100.0 g at the beginning, how many grams would be left after 7.2 minutes has elapsed?
2. Os-182 has a half-life of 21.5 hours. How many grams of a 10.0 gram sample would have decayed after exactly three half-lives?

3) A sample of radioactive waste will have reached an acceptable activity level at .5 curies. If the half-life of the sample is 5 years and the sample can be disposed of after a minimum of 20 years, what must the original activity level of the sample be?

4 ) U-238 has a half-life of 4.46 x 109 years. How much U-238 should be present in a sample 2.5 x 109 years old, if 2.00 grams was present initially?

5) Rn-222 has a half-life of 3.82 days. How long before only 1/16 of the original sample remains?

6) If you start with 2.97 x 1022 atoms of molybdenum-99 (half-life = 65.94 hours), how many atoms will remain after one week?

7) If a sample of radioactive waste has an activity of level of 2 curies and a half-life of 4 years, after how many years will the activity of the sample be reduced to .5 curie?