Half Life Practice Problems Name:_____ Per:___ Date:_____

Show all your work and box your answer for credit.

1. A piece of uranium-238 weighs 1.000 kg. How much of this isotope will remain about 36×10^9 years? The half life of uranium 238 is 4.5×10^9 years.

2. Polonium-218 has a half life of 3.0 min. A sample weighing 50.00 g is stored on a laboratory shelf. How much of the isotope will remain after 15 minutes have passed.

3. A meteorite strikes the earth in western Wyoming. Chemical analysis shows that it contains 44.62 kg of radioactive iron-59. How much of this isotope will remain in the meteorite after 220 days? Iron-59 has a half life of 44.3 days.

4. Polonium-210 (our alpha source) has a half-life of 138 days. If the alpha emission of a 0.0001 gram sample is undetectable by a Geiger counter, how many days until we will be unable to find our missing 0.10 gram alpha source? Cobalt-60 has a half life of 5.3 years. If the missing gamma source had a mass of 0.10 grams today, how many grams will remain when you are 63 years old (assuming you are currently 16 years old)?

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