

Name _____

Half-lives

- 1) The half-life of carbon-14 is 5730 years. A sample taken from a cloth contains only 25.00% of the carbon-14 that a fresh piece of cloth would have. How old is this sample?
- 2) What is the half-life of Strontium-90 if after 86.4 years a 1.00gram sample decayed to 125mg?
- 3) Ge-66 has a half-life of 2.50 hours. After 10.0 hours only 25.0 counts of radiation is detected. How many counts would have been detected at the start of the 10.0 hours?
- 4) Phosphorus-32 has a half-life of 14.3 days. A 30.0 count sample is stored for 114.4 days. How much radiation of the original sample remains?
- 5) What is the half-life of I-131 if a 10.g sample decays to 0.625g in 4.0 days.
- 6) F-21 has a half-life of 5.00sec. If you start with 21.0g, how much will remain after 1.00 minute?
- 7) A medical lab needs 3.00g of Bi-214. The half-life of Bi-214 is 20.0 minutes. If a 96.0g sample is shipped to the lab, how much shipping time needs to be allowed?
- 8) A sample of Co-60 is stored on a shelf. It has a half-life of 5.30 years. If after 31.8 years the container still has 2.850g of Co-60 in it, then how much was in the container when it was put on the shelf?
- 9) You test the air in your basement for radon. Radon-222 has a half-life of 3.80 days. It took 11.4 days before the lab tested your sample. When the sample was tested it was determined that there was 5.30 μ g of Radon-222 present. How much was in the original sample then?
- 10) The half-life of Ce-137 is 30.2 years. If the initial mass of a sample is 2.50kg, then how much in grams will be left after 151 years?