

HALF-LIFE PROBLEMS

1. An isotope of cesium (cesium-137) has a half-life of 30 years. If 1.0 mg of cesium-137 disintegrates over a period of 90 years, how many mg of cesium-137 would remain?
2. A 2.5 gram sample of an isotope of strontium-90 was formed in a 1960 explosion of an atomic bomb at Johnson Island in the Pacific Test Site. The half-life of strontium-90 is 28 years. In what year will only 0.625 grams of this strontium-90 remain?
3. Actinium-226 has a half-life of 29 hours. If 100 mg of actinium-226 disintegrates over a period of 58 hours, how many mg of actinium-226 will remain?
4. Thallium-201 has a half-life of 73 hours. If 4.0 mg of thallium-201 disintegrates over a period of 6.0 days and 2 hours, how many mg of thallium-201 will remain?
5. The half-life of isotope X is 2.0 years. How many years would it take for a 4.0 mg sample of X to decay and have only 0.50 mg of it remain?
6. Selenium-83 has a half-life of 25.0 minutes. How many minutes would it take for a 10.0 mg sample to decay and have only 1.25 mg of it remain?
7. Element-106 has a half-life of 0.90 seconds. If one million atoms of it were prepared, how many atoms would remain after 4.5 seconds?
8. Three grams of Bismuth-218 decay to 0.375 grams in one hour. What is the half-life of this isotope?
9. Lr-257 has a half life of 8 seconds. What % of a sample will remain 32 seconds after it is made?
10. Na-24 has a half life of 15 hours. How long will it take for a sample to decay to 25% of its original mass?
11. A 64 gram sample of I-131 is tested after 40 days and is found to contain only 2 grams of I-131. What is the half life of I-131?

HALF LIFE GRAPHS

