1.5.3.1: Practice Half-Life

Exercise 1.5.3.1.1

How many years does it take for 4.7 half-lives to pass for a sample of sodium-22? The half-life of sodium-22 is 2.6 years..

Answer

   12 years

Exercise 1.5.3.1.1

How many half-lives have passed for a sample of gold-198 that is 3.4 weeks old? The half-life of gold-198 is 2.7 days.

Answer

   8.8 half-lives

Exercise 1.5.3.1.1

If you start with 422 mg of calcium-47, how much will remain after 5.00 half-lives have passed?

Answer

   13.2 mg

Exercise 1.5.3.1.1

The half-life of sodium-24 is 15.0 hours. If you begin with a sample that has 675 nCi of activity, what activity will remain after 3.75 days? (Hint: how many half-lives have passed for the sample after 3.75 days?)

Hint

   6.00 half-lives have passed.

Answer

   10.5 nCi of activity remain