

- 1 Define the **half-life** of a radioactive isotope
- 2 A sample of a radioactive isotope contains 400 million atoms of the isotope
 - a) Calculate how many atoms of the isotope are present after:
 - i) one half life
 - ii) two half lives
 - iii) five half lives
- 3 After 8 hours, a radioactive isotope sample with a 2 hour half life contained 20 million atoms
 - a) Calculate how many atoms of the isotope were present after
 - i) 2 hours
 - ii) 4 hours
 - b) How many atoms of the radioactive isotope will be present after 16 hours?
- 4 During radioactive carbon dating of ancient wood, a sample had an activity of 80 Bq.
The same mass of living wood had an activity of 640 Bq
The half life of the the radioactive carbon in the wood is 5,600 years
 - a) Calculate how many half-lives the activity took to decrease from 640 Bq to 80 Bq
 - b) Calculate the age of the ancient sample of wood
- 5 During radioactive carbon dating of ancient cloth, a sample had an activity of 12 Bq.
The same mass of new cloth had an activity of 24 Bq
The half life of the the radioactive carbon in the cloth is 5,600 years
 - a) Calculate how many half-lives the activity took to decrease from 24 Bq to 12 Bq
 - b) Calculate the age of the ancient cloth