½ Life Practice 2:

1. How much of a 12g sample of a radioactive sample remains after 1 half-life?
2. How many half-lives must pass for an 832g sample of radioactive isotopes to decay to 13g?
3. How much of a 28g sample remains after 2 half-lives?
4. A radioactive sample is studied and it is determined that there is 120g of parent material and 120g of daughter material present. How many half-lives have passed?
5. A radioactive sample is studied and it is determined that there is 60g of parent material and 180g of daughter material present. How many half-lives have passed?
6. A radioactive sample is studied and it is determined that there is 37.5g of parent material and 262.5g of daughter material present. How many half-lives have passed?
7. 1400g of a radioactive sample decays by β-decay. After 62hours there is 350g of the parent isotope remaining. What is the half-life?
8. How much of a 6.0kg sample remains after 8 half-lives?
9. How much of a 988g sample remains after 16 half-lives?
10. How much of a 420kg sample remains after 24 half-lives?
11. A sample has a half-life equal to 12.0 minutes. The original sample has a mass of 1600g. How much of the sample remains after:
12. 24.0 minutes
13. 48.0 minutes
14. 1.0 hour
15. A sample has a half-life of 250 years. The original sample has a mass of 19g. How much remains after:
16. 500 years
17. 1000 years
18. 5000 years
19. A sample has a half-life of 0.010s. The original sample has a mass of 200kg. How much of the original sample remains after:
20. 0.030s
21. 0.080s
22. 1.0s
23. Nitrogen-15 decays to Oxygen-15 with a half-life of 14.0 minutes. The original sample of N-15 has a mass of 200.0g. How much of the **DAUGHTER, O-15,** exists after:
24. 14.0 min
25. 28.0 min
26. 70.0 min
27. Cadmium-116 decays to Technelium-100 with a half-life of 680 years. The original sample had a mas of 1000.0kg.
28. How much Cd-116 remains after 1360 years?
29. How much Tc-110 exists after 1360years?
30. How many alpha- decays and beta-decays have occurred?
31. A sample has a half-life of 10.0 seconds. The original sample is 240.0g. How much of the parent remains after:
32. 12 seconds
33. 36 seconds
34. 54 seconds
35. A sample of C-14 decays to N-14. The half-life is approximately 5730 years. What percentage of the

C-14 remains after:

1. 10 years
2. 100 years
3. 10 000 years
4. 1 000 000 years