

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## **Chemistry** *Radioactive Decay WS*

I. Give the nuclear symbols for the following particles:

1. alpha ( $\alpha$ ) \_\_\_\_\_

4. proton \_\_\_\_\_

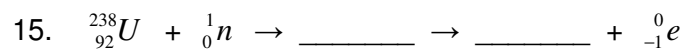
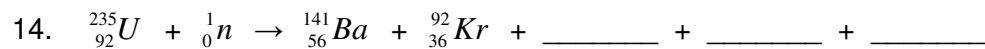
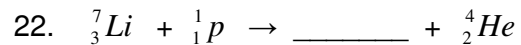
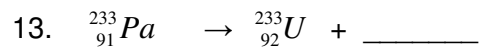
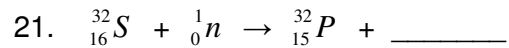
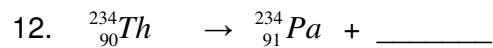
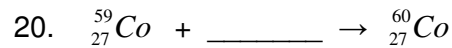
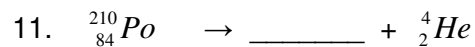
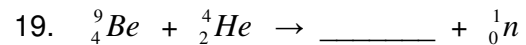
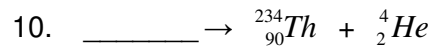
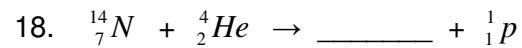
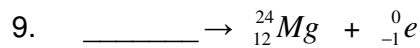
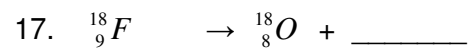
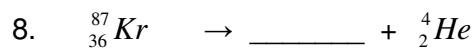
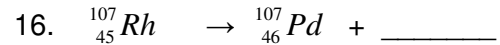
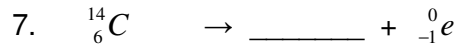
2. beta ( $\beta$ ) \_\_\_\_\_

5. neutron \_\_\_\_\_

3. positron \_\_\_\_\_

6. neutrino \_\_\_\_\_

II. Complete the following radioactive decay equations:



III. *For each step of the following nuclear decay process, write its radioactive decay equation.*

23. Uranium-238 emits an alpha particle to form a daughter nuclide. Show the equation for this transmutation.
  
24. The product from the previous problem has a half-life of about 24 days, and it decays by giving off a beta particle. Show this decay equation.
  
25. The product from #24 decays by releasing another beta particle. What is the nuclear equation for this decay process?
  
26. Give the nuclear equation for the decay process in which the previous problem's product emits an alpha particle.
  
27. The resulting isotope in Problem #26 also emits an alpha particle to form a well-known radioactive substance discovered by Marie and Pierre Curie in 1898. Show this equation.
  
28. The nuclide from #27 decays by giving off an alpha particle to form a radioactive gas. What is the nuclear equation for this decay process?
  
29. The nuclei from the previous problem are unstable and have a half-life of about three minutes. They also decay by each giving off an alpha particle to form another radioactive isotope. What is the equation for this step of the decay process?