

Name: _____

Hour: _____ Date: _____

Chemistry: *Nuclear Equations*

Directions: Solve each of the following problems. Where necessary, show your work and include proper units.

1. Write a balanced nuclear equation for the...

A. ... α -decay of uranium-238

D. ...production of cobalt-59 by electron capture

B. ... β -decay of carbon-14

E. ...production of zinc-66 by β -decay

C. ...positron decay of oxygen-15

F. ...production of C-12 + a neutron, by α -decay

2. What isotope is present at the end of each radioactive decay series?

A. lead-210: β , β , α

C. radium-226: α , α , α , β , β , α

B. uranium-238: α , β , β , α

D. thorium-234: β , β , α , α , α

3. Element 109 is meitnerium and is named after Lise Meitner. If a Mt-266 nucleus was produced from the bombardment of a bismuth-209 nucleus by an iron-58 nucleus, what other product(s) is/are formed? Write a balanced nuclear equation to justify your answer.

4. Californium-249 was bombarded in creating nuclei of seaborgium-263. Four neutrons were emitted for each Sg-263 nuclide formed. What was the bombarding particle? Write an equation to justify your answer.