Name _____ **Date** _____

Nuclear Decay - Honors

The following atoms all undergo alpha particle emission. Write the complete nuclear equation.

$^{210}_{84}Po \rightarrow$ _____ + _____

$^{238}_{92}U \rightarrow$ _____ + _____

$^{238}_{90}Th \rightarrow$ _____ + _____

$^{222}_{86}Rn \rightarrow$ _____ + _____

The following atoms all undergo beta negative decay. Write the complete nuclear equation.

$^{14}_{6}C \rightarrow$ _____ + _____

$^{90}_{38}Sr \rightarrow$ _____ + _____

$^{40}_{19}K \rightarrow$ _____ + _____

$^{13}_{7}N \rightarrow$ _____ + _____

The following all undergo beta positive (positron) decay. Write the complete nuclear equation.

$^{116}_{50}Sn \rightarrow$ _____ + _____

$^{61}_{29}Cu \rightarrow$ _____ + _____

$^{30}_{16}S \rightarrow$ _____ + _____

$^{85}_{38}Sr \rightarrow$ _____ + _____

Name _____ **Date** _____

Complete the missing information in the reactions. Then, label the reaction one of the following:

- Alpha Decay
- Gamma Radiation
- Beta Negative Decay
- Beta Positive Decay

$\_\_\_\_\_ \rightarrow {}^{14}_{7}N + {}^{0}_{-1}e$ Type: _____

${}^{238}_{92}U \rightarrow {}^{234}_{90}Th + \_\_\_\_\_$ Type: _____

${}^{15}_{8}O \rightarrow {}^{15}_{7}N + \_\_\_\_\_$ Type: _____

${}^{32}_{15}P \rightarrow \_\_\_\_\_ + {}^{0}_{-1}e$ Type: _____

${}^{105}_{47}Ag + \_\_\_\_\_ \rightarrow {}^{105}_{46}Pd$ Type: _____

$\_\_\_\_\_ \rightarrow {}^{0}_{+1}e + {}^{40}_{20}Ca$ Type: _____

${}^{244}_{94}Pu \rightarrow {}^{4}_{2}He + \_\_\_\_\_$ Type: _____

Write nuclear equations that describe the following processes:

- Uranium-235 undergoes alpha decay to produce Thorium-231.

- Lathanum-144 becomes Cerium-144 when it undergoes a beta decay.

- The beta positive decay of Dysprosium-165 creates a new element.

What atom produces Scandium-47 when it goes through a beta negative decay?

What new element is formed when Curium-244 emits two alpha particles and three gamma rays?