

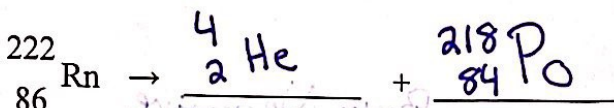
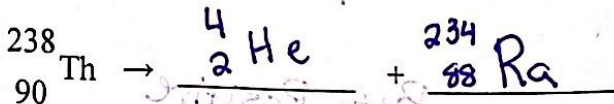
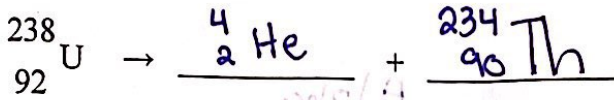
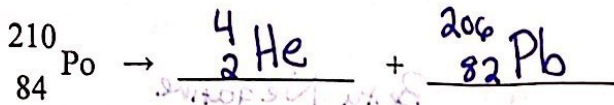
Name

KeyHonors

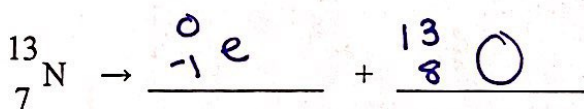
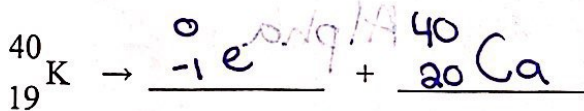
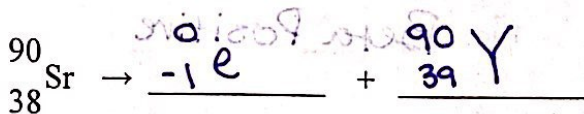
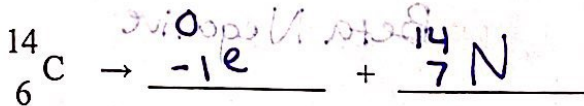
Date \_\_\_\_\_

**Nuclear Decay**

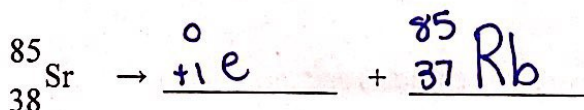
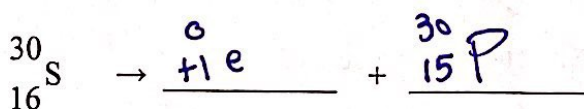
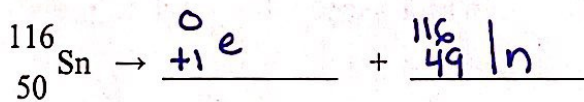
The following atoms all undergo alpha particle emission. Write the complete nuclear equation.



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



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



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

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

$$\underline{^{14}_6\text{C}} \rightarrow \underline{^{14}_7\text{N}} + \underline{^0_{-1}\text{e}}$$

Type: Beta Negative

$$\underline{^{238}_{92}\text{U}} \rightarrow \underline{^{234}_{90}\text{Th}} + \underline{^4_2\text{He}}$$

Type: Alpha

$$\underline{^{15}_8\text{O}} \rightarrow \underline{^{15}_7\text{N}} + \underline{^0_{+1}\text{e}}$$

Type: Beta Positive

$$\underline{^{32}_{15}\text{P}} \rightarrow \underline{^{32}_{16}\text{S}} + \underline{^0_{-1}\text{e}}$$

Type: Beta Negative

$$* \underline{^{105}_{47}\text{Ag}} + \underline{^0_{-1}\text{e}} \rightarrow \underline{^{105}_{46}\text{Pd}}$$

Type: Beta Negative

$$\underline{^{40}_{21}\text{Sc}} \rightarrow \underline{^0_{+1}\text{e}} + \underline{^{40}_{20}\text{Ca}}$$

Type: Beta Positive

$$\underline{^{244}_{94}\text{Pu}} \rightarrow \underline{^4_2\text{He}} + \underline{^{240}_{92}\text{U}}$$

Type: Alpha

Write nuclear equations that describe the following processes:

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

$$\underline{^{235}_{92}\text{U}} \rightarrow \underline{^4_2\text{He}} + \underline{^{231}_{90}\text{Th}}$$

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

$$\underline{^{144}_{57}\text{La}} \rightarrow \underline{^{144}_{58}\text{Ce}} + \underline{^0_{-1}\text{e}}$$

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

$$\underline{^{165}_{66}\text{Dy}} \rightarrow \underline{^0_{+1}\text{e}} + \underline{^{165}_{65}\text{Tb}}$$

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

Calcium-47

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

$$\underline{^{244}_{96}\text{Cm}} \rightarrow \underline{^4_2\text{He}} + \underline{^4_2\text{He}} + \underline{3\gamma} \rightarrow \underline{^{236}_{92}\text{U}}$$