NUCLEAR DECAY

Name _____

Predict the products of the following nuclear reactions.

1.
$$^{42}\text{K} \rightarrow ^{0}\text{e} + _{--}$$

2.
239
Pu $\rightarrow {}^{4}_{2}$ He + _____

3.
$$^{235}_{92}U \rightarrow$$
 + ^{231}Th

5.
$${}_{3}^{6}\text{Li} + {}_{0}^{1}\text{n} \rightarrow {}_{2}^{4}\text{He} + \underline{\hspace{1cm}}$$

6.
$${}^{27}_{13}\text{Al} + {}^{4}_{2}\text{He} \rightarrow {}^{30}_{15}\text{P} + \underline{\hspace{2cm}}$$

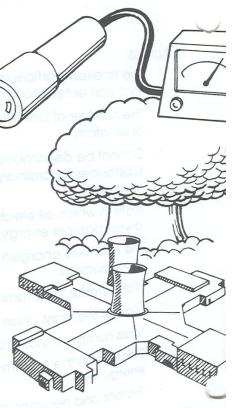
7.
$${}_{4}^{9}\text{Be} + {}_{1}^{1}\text{H} \rightarrow _{2}^{4}\text{He}$$

8.
$${}^{37}K \rightarrow {}^{0}e + \underline{}$$

9. _____ +
$${}_{0}^{1}$$
n $\rightarrow {}_{56}^{142}$ Ba + ${}_{36}^{91}$ Kr + $3{}_{0}^{1}$ n

10.
$$^{238}_{92}$$
U + $^{4}_{2}$ He \rightarrow _____ + $^{1}_{0}$ n





HALF-LIFE OF RADIOACTIVE ISOTOPES

Name _____

1. How much of a 100.0 g sample of ¹⁹⁸ Au is left after 8.10 days if its half-life is 2.70 days?
4. As you travel down a group, the atomic size (decreases / increases). Why? 5. A negative ion is Clarace Charles a secret starce.
2. A 50.0 g sample of ¹⁶ N decays to 12.5 g in 14.4 seconds. What is its half-life?
3. The half-life of ⁴² K is 12.4 hours. How much of a 750 g sample is left after 62.0 hours?
10. Where is the lowest electron, stark stand? 11. Elements of Group 1 are called 12. Elements of Group 2 are called
4. What is the half-life of ⁹⁹ Tc if a 500 g sample decays to 62.5 g in 639,000 years?
The half-life of ²³² Th is 1.4 x 10 ¹⁰ years. If there are 25.0 g of the sample left after 2.8 x 10 ¹⁰ years, how many grams were in the original sample?
here are 5.0 g of ¹³¹ left after 40.35 days. How many grams were in the original sample if its half-life is 8.07 days?