

Nuclear Decay

Using a periodic table, fill in the blanks to complete the following nuclear equations. Then, identify which type(s) of decay particles were produced. Circle (or hi-lite) the alpha particles with green, the beta particles with blue, and the gamma rays with red.

Standard: Students know the three most common forms of radioactive decay (alpha, beta, and gamma) and know how the nucleus changes in each type of decay.

| | Alpha | Beta | Gamma |
|---|-------|------|-------|
| ${}_{19}^{42}\text{K} \rightarrow {}_{-1}^0\text{e} + \underline{\hspace{2cm}}$ | | | |
| ${}_{92}^{235}\text{U} \rightarrow \underline{\hspace{2cm}} + {}_{90}^{231}\text{Th}$ | | | |
| ${}_{3}^6\text{Li} + {}_{0}^1\text{n} \rightarrow {}_{-1}^0\text{e} + {}_{2}^4\text{He} + \underline{\hspace{2cm}}$ | | | |
| ${}_{4}^9\text{Be} + {}_{1}^1\text{H} \rightarrow \underline{\hspace{2cm}} + {}_{2}^4\text{He}$ | | | |
| ${}_{1}^1\text{H} + {}_{1}^3\text{H} \rightarrow \underline{\hspace{2cm}} + {}_{0}^0\gamma$ | | | |
| ${}_{94}^{239}\text{Pu} \rightarrow {}_{2}^4\text{He} + \underline{\hspace{2cm}}$ | | | |
| $\underline{\hspace{2cm}} + {}_{0}^1\text{n} \rightarrow {}_{56}^{142}\text{Ba} + {}_{36}^{91}\text{Kr} + 3{}_{0}^1\text{n} + {}_{0}^0\gamma$ | | | |
| ${}_{88}^{226}\text{Ra} \rightarrow {}_{2}^4\text{He} + \underline{\hspace{2cm}}$ | | | |
| ${}_{6}^{13}\text{C} + {}_{1}^1\text{H} \rightarrow \underline{\hspace{2cm}} + {}_{0}^0\gamma$ | | | |
| ${}_{13}^{27}\text{Al} + \underline{\hspace{2cm}} \rightarrow {}_{11}^{24}\text{Na} + {}_{2}^4\text{He}$ | | | |
| ${}_{92}^{235}\text{U} + {}_{0}^1\text{n} \rightarrow {}_{53}^{139}\text{I} + 2{}_{0}^1\text{n} + \underline{\hspace{2cm}} + {}_{0}^0\gamma$ | | | |
| ${}_{7}^{15}\text{N} + {}_{1}^1\text{H} \rightarrow {}_{6}^{12}\text{C} + \underline{\hspace{2cm}} + {}_{0}^0\gamma$ | | | |
| $\underline{\hspace{2cm}} \rightarrow {}_{2}^4\text{He} + {}_{81}^{208}\text{Tl}$ | | | |