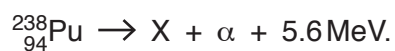


- 7 A nucleus of plutonium-238 ($^{238}_{94}\text{Pu}$) decays by emitting an α -particle to produce a new nucleus X and 5.6 MeV of energy. The decay is represented by



- (a) Determine the number of protons and the number of neutrons in nucleus X.

number of protons =

number of neutrons =

[2]

- (b) Calculate the number of plutonium-238 nuclei that must decay in a time of 1.0 s to produce a power of 0.15 W.

number = [2]

[Total: 4]