

Solutions

2.1 A Separate conservation of nucleon number from conservation of total energy. Released neutrons may initiate further fissions, escape or be absorbed. A controlled reactor and an uncontrolled chain reaction have different neutron-management conditions.

2.2 $\text{Neutrons} = 235 + 1 - 141 - 92 = 3$.

2.3 False. Mass number is not a precise mass in kilograms. Balanced integer labels alone do not calculate the released energy. Radioactive decay and neutron-induced fission are not interchangeable descriptions.

2.4 fission. fission means Splitting of a heavy nucleus into lighter nuclei.

3.1 $x=3$; proton balance is $92=56+36$. Nucleon number and charge balance while binding-energy differences allow rest mass to become other energy.