Average Atomic Mass Worksheet – Solutions

1) Rubidium has two common isotopes, ^{85}Rb and ^{87}Rb. If the abundance of ^{85}Rb is 72.2% and the abundance of ^{87}Rb is 27.8%, what is the average atomic mass of rubidium?

85.56 amu

2) Uranium has three common isotopes. If the abundance of ^{234}U is 0.01%, the abundance of ^{235}U is 0.71%, and the abundance of ^{238}U is 99.28%, what is the average atomic mass of uranium?

237.98 amu

3) Titanium has five common isotopes: ^{46}Ti (8.0%), ^{47}Ti (7.8%), ^{48}Ti (73.4%), ^{49}Ti (5.5%), ^{50}Ti (5.3%). What is the average atomic mass of titanium?

47.92 amu

4) Explain why atoms have different isotopes. In other words, how is it that helium can exist in three different forms?

Neutrons exist to stabilize the nucleus – without them, the nucleus would consist of nothing but positively-charged protons in close proximity to one another. Because there are different ways of stabilizing the protons, there are different isotopes.