

Average Atomic Mass Worksheet

- 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?

$$85(.722) + 87(.278) = \underline{85.56 \text{ u}}$$

- 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?

$$234(.0001) + 235(.0071) + 238(.9928) = \underline{237.98 \text{ u}}$$

- 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?

$$46(.08) + 47(.078) + 48(.734) + 49(.055) + 50(.053) \\ = \underline{47.92 \text{ u}}$$

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

— different number of neutrons in the nucleus used to separate the protons so that the nucleus is stable.