

Average Atomic Mass Practice

1. Silver-107 is 51.84% abundant and Silver-109 is 48.16% abundant. The precise mass of Silver-107 is 106.90509 amu and the precise mass of Silver-109 is 108.90476 amu. What is the average atomic mass of silver? Report your final answer to 2 places after the decimal.

$$(0.5184)(106.90509 \text{ amu}) + (0.4816)(108.90476 \text{ amu}) =$$

$$55.42 \text{ amu} + 52.45 \text{ amu} = \boxed{107.87 \text{ amu}}$$

2. What is the average atomic mass of silicon given the following abundance information on the isotopes of silicon? Report your final answer to 2 places after the decimal.

Mass Number	Abundance
Si-28	92.21%
Si-29	4.70%
Si-30	3.09%

$$28 \cdot 0.9221 = 25.82 \text{ amu}$$

$$29 \cdot 0.0470 = 1.36 \text{ amu}$$

$$30 \cdot 0.0309 = 0.93 \text{ amu}$$

$$+ \quad \boxed{28.11 \text{ amu}}$$

3. What is the average atomic mass of hafnium given the following abundance information on its isotopes? Report your final answer to 2 places after the decimal.

Mass Number	Abundance
Hf-176	5%
Hf-177	19%
Hf-178	27%
Hf-179	14%
Hf-180	35%

$$176 \cdot 0.05 = 8.80 \text{ amu}$$

$$177 \cdot 0.19 = 33.63 \text{ amu}$$

$$178 \cdot 0.27 = 48.06 \text{ amu}$$

$$179 \cdot 0.14 = 25.06 \text{ amu}$$

$$180 \cdot 0.35 = 63.00 \text{ amu}$$

$$+ \quad \boxed{178.55 \text{ amu}}$$

4. What do the isotopes Hydrogen-1, Hydrogen-2, and Hydrogen-3 have in common? What is different about these isotopes? Your response should include references to atomic number, mass number, protons, neutrons, and electrons.

same \rightarrow atomic number, # protons, electrons (if all neutral)
 different \rightarrow mass #s & # of neutrons