Name Answer Key Period ____ Date _____

More Average Atomic Mass

Calculate the average atomic masses. Round all answers to two decimal places.

1. What is the atomic mass of hafnium if, out of every 100 atoms, 5 have a mass of 176, 19 have a mass of 177, 27 have a mass of 178, 14 have a mass of 179, and 35 have a mass of 180.0?

that means these are like percentages

$.05(176) + .19(177) + .27(178) + .14(179) + .35(180)$

atomic mass of hafnium = 178.55 amu

2. Iodine is 80% ^{127}I, 17% ^{126}I, and 3% ^{128}I. Calculate the average atomic mass of iodine.

$.80(127) + .17(126) + .03(128)$

Atomic mass of iodine = 126.86 amu

3. Calculate the average atomic mass of gold with the 50% being gold-197 and 50% being gold-198.

$.5(197) + .5(198)$

Atomic mass of gold = 197.50 amu

4. Calculate the average atomic mass of lithium, which occurs as two isotopes that have the following atomic masses and abundances in nature: 6.017 u, 7.30% and 7.018 u, 92.70%.

$.0730(6.017) + .9270(7.018)$

Atomic mass of Li = 6.94 u (same as amu)

5. Hydrogen is 99% ^{1}H, 0.8% ^{2}H, and 0.2% ^{3}H. Calculate its average atomic mass.

$.99(1.0) + .008(2.0) + .002(3.0)$

atomic mass of H = 1.01 amu

6. Calculate the average atomic mass of magnesium using the following data for three magnesium isotopes.

Isotope	***mass (u)***		***relative abundance***
Mg-24	23.985	×	0.7870
Mg-25	+ 24.986	×	0.1013
Mg-26	+ 25.983	×	0.1117

24.31 amu (or u)

7. Calculate the average atomic mass of iridium using the following data for two iridium isotopes.

Isotope		***mass (u)***		***relative abundance***
Ir-191		(191.0	×	0.3758)
Ir-193	+	(193.0	×	0.6242)

192.25 amu

8. Lithium has two naturally occurring isotopes: lithium-6 and lithium-7. If the average atomic mass of lithium is 6.941 amu, which isotope is the most abundant? How do you know?

lithium 7. 6.941 is closer to 7 than to 6, therefore the 7 isotope must be more abundant.