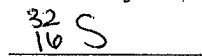Worksheet: Isotopes, Atomic Mass

Key

1. There are four isotopes of sulfur with mass numbers 32, 33, 34, and 36. Write the atomic symbol for each of these isotopes.

$^{32}_{16}S$ _____ $^{33}_{16}S$ _____ $^{34}_{16}S$ _____ $^{36}_{16}S$ _____

2. Two isotopes of gallium are naturally occurring, with $^{69}_{31}Ga$ at 60.11% (68.93amu) and $^{71}_{31}Ga$ at 39.89% (70.92amu). What is the atomic mass of gallium?

atomic mass = (68.93 · 0.6011) + (70.92 · 0.3989)

atomic mass = 69.72 amu

3. Given that the atomic mass of Chlorine, Cl, is 35.45amu, solve for the % abundance of the isotope $^{37}_{17}Cl$. Chlorine has two isotopes, $^{35}_{17}Cl$ which weighs 34.97amu at 75.77% and $^{37}_{17}Cl$ which weighs 36.97amu.

100 - 75.77 = 24.23%

35.45 = (34.97 · 0.7577) + (36.97 · x)

35.45 = 26.497 + 36.97x

8.95 = 36.97x

x = 0.2422   24.22%