

1. What is Z, the atomic number?

The number of protons. Z identifies an element

2. What is the mass number, A?

Sum of the protons and neutrons

3. How many neutrons are in oxygen-17?

$A - Z = 17 - 8 = 9$  neutrons.

4. What is the difference between the mass number and atomic mass?

The mass number is the sum of the protons and neutrons and always must be a whole number. The atomic mass is the average weighted atomic mass of each isotope in the sample.

5. How many protons, neutrons, and electrons in the following isotope? What is the mass number? Identify the element.



There are 74 protons, 74 electrons, and 114 neutrons. The mass number, A, is 188. The element has  $Z = 74$  and is tungsten, W.

6. The isotopic masses and percent abundances are given for element X in the table below. Calculate the weighted average atomic mass. Identify the element.

Isotope	Mass, $\mu$	Percent Abundance
${}^{36}\text{X}$	35.967546	0.3365
${}^{38}\text{X}$	37.962732	0.0632
${}^{40}\text{X}$	39.962383	99.6003

$$0.003365 \times 35.967546 \mu + 0.000632 \times 37.962732 + 0.996003 \times 39.962383 = 34.948 \mu$$

It looks like the element is the noble gas argon, Ar.