1. (6 pts.) One isotope of a certain element has 12 protons, 14 neutrons, and 12 electrons.
   
   a. Write out the complete nuclear symbol of this isotope. (Don't forget to include its mass number and atomic number.)

   \[ ^{26}_{12}\text{Mg} \]

   b. What is the name of this element?

   Magnesium

   c. List the name of one other element on the periodic table that you would expect to have similar chemical and physical properties as the element you identified in part b. In a few words, briefly explain how you determined your choice.

   Calcium b/c both have the same # of valence electrons in their outermost shell (2 electrons)

2. (2 pts.) In no more than one sentence, explain the difference between the terms "mass number" and "atomic mass."

   Whereas mass number is simply the sum of the protons + neutrons & for a particular isotope of an element, the atomic mass (which is given on the periodic table) is the average mass of all isotopes of that element.

3. (3 pts.) Which has the larger first ionization energy, lithium (Li) or oxygen (O)? Provide a brief, but complete, explanation of how you determined your choice.

   Oxygen is to the right of Li in the Periodic Table (same row). Therefore it will be smaller than Li because it contains more protons pulling on electrons in the same shell. Consequently, the outermost electrons, which are feeling more attraction from the nucleus, will be harder to remove for (higher ionization energy).