

Section 11.2 Mass and the Mole

In your textbook, read about the mass of a mole.

For each statement below, write *true* or *false*.

- _____ 1. The isotope hydrogen-1 is the standard used for the relative scale of atomic masses.
- _____ 2. The mass of an atom of helium-4 is 4 amu.
- _____ 3. The mass of a mole of hydrogen atoms is 1.00×10^{23} amu.
- _____ 4. The mass in grams of one mole of any pure substance is called its molar mass.
- _____ 5. The atomic masses recorded on the periodic table are weighted averages of the masses of all the naturally occurring isotopes of each element.
- _____ 6. The molar mass of any element is numerically equal to its atomic mass in grams.
- _____ 7. The molar mass unit is mol/g.
- _____ 8. If the measured mass of an element is numerically equal to its molar mass, then you have indirectly counted 6.02×10^{23} atoms of the element in the measurement.

In your textbook, read about using molar mass.

For each problem listed in Column A, select from Column B the letter of the conversion factor that is needed to solve the problem. You may need to use more than one conversion factor to solve the problem.

Column A	Column B
_____ 9. Find the number of moles in 23.0 g of zinc.	a. $\frac{65.4 \text{ g Zn}}{1 \text{ mol Zn}}$
_____ 10. Find the mass of 5.0×10^{20} zinc atoms.	b. $\frac{1 \text{ mol Zn}}{65.4 \text{ g Zn}}$
_____ 11. Find the mass of 2.00 moles of zinc.	c. $\frac{6.02 \times 10^{23} \text{ atoms Zn}}{1 \text{ mol Zn}}$
_____ 12. Find the number of atoms in 7.40 g of zinc.	d. $\frac{1 \text{ mol Zn}}{6.02 \times 10^{23} \text{ atoms Zn}}$
_____ 13. Find the number of moles that contain 4.25×10^{27} zinc atoms.	
_____ 14. Find the number of atoms in 3.25 moles of zinc.	