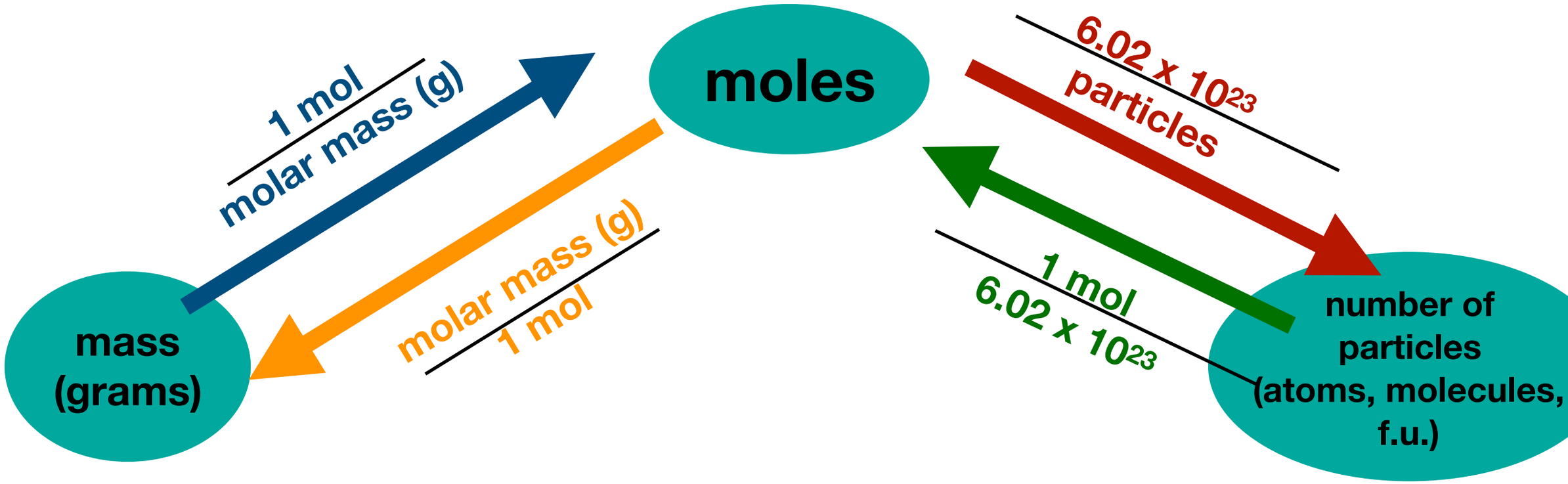
Mole Conversions

Unit 7


moles
1 mol
molar mass (g)
molar mass (g)
1 mol
6.02 x 10²³
particles
1 mol
6.02 x 10²³
mass
(grams)
number of
particles
(atoms, molecules,
f.u.)

Practice

All practice problems will be completed in class. Leave 3 blank lines in-between!

Mass -> Moles

$$\frac{\text{1 mol}}{\text{molar mass (g)}}$$

1. How many moles of H_2O are in 212.5 g H_2O?

2. How many moles of calcium hydroxide are in a 20.0 g sample?

Moles -> Mass

$$\frac{\text{molar mass (g)}}{\text{1 mol}}$$

1. How many grams of H_2O are in 3.2 mol H_2O?

2. What is the mass of 2.3 mol calcium hydroxide?

Moles -> Particles

$$\frac{6.02 \times 10^{23} \text{ particles}}{1 \text{ mole}}$$

1. How many molecules of H_2O are in 3.2 mol H_2O?

2. A 2.3 mol calcium hydroxide sample has how many formula units?

Particles -> Moles $\frac{\textbf{1 mol}}{\textbf{6.02 x } 10^{23} \textbf{ particles}}$

1. How many moles of H_2O are in 3.50×10^{32} molecules H_2O?

2. A 2.3×10^{27} f.u. calcium hydroxide sample has how many moles?

Mass -> Particles $\left(\frac{1\text{ mol}}{\text{molar mass (g)}}\right)\left(\frac{6.02 \times 10^{23}\text{ particles}}{1\text{ mole}}\right)$

1. How many molecules of H_2O are in 5.00 g H_2O?

2. A 4.5 g calcium hydroxide sample has how many formula units?

Particles -> Mass $\left(\frac{\text{1 mol}}{\text{6.02 x } 10^{23} \text{ particles}}\right)\left(\frac{\text{molar mass (g)}}{\text{1 mol}}\right)$

1. What is the mass of 5.00 x 10^{22} molecules H_2O?

2. What is the mass of 4.5 x 10^{18} f.u. calcium hydroxide?