

Ch 10

Sec 10.2

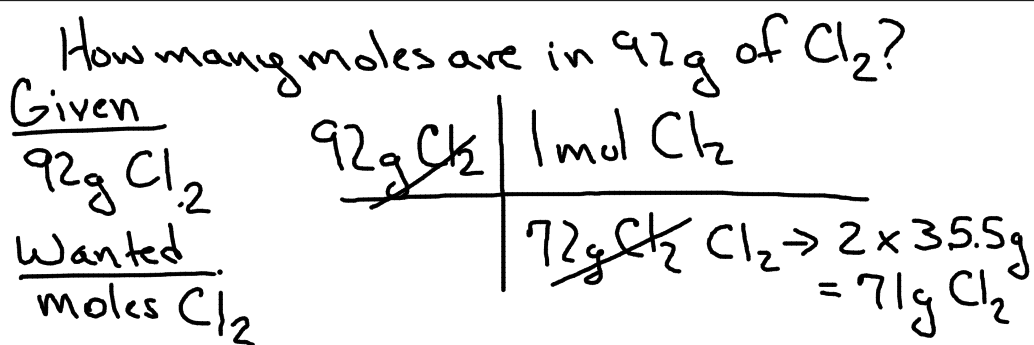
HW: Sec Asses 24-28 Rev Con 58,59,60

obj: Use molar mass to convert between mass, moles, and volume of a substance.

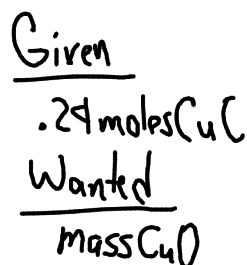
Molar mass

- Another way to name the formula mass of the substance.
- Use the formula mass of a substance as a conversion factor.
- Formula mass of diatomic molecules
 - * Seven Diatomic molecules
 - $H_2, N_2, O_2, F_2, Cl_2, Br_2, I_2$
 - * In their free state these elements are molecules not atoms.

11/4/02 7:57 AM



What is the mass of .24 moles CuO ?



Nov 5 - 11:31 AM

Mole-Volume Relationship

- The volume of 1 mole of a gas @ standard temp + pressure is always 22.4L.

* Standard Temp + Pressure (STP)

* Standard Temperature

0°, 273K

* Standard Pressure

101.3kPa, 760mmHg, 1atm

* Has to be a gas!!!

* 1 mole gas @ STP = 22.4L

$$\frac{22.4L}{1\text{mole}}, \frac{1\text{mole}}{22.4L}$$

Nov 4 - 1:11 PM

How many moles of O₂ gas @ STP is 13.4L?

Given -
13.4L O₂

Wanted
moles O₂

$$\frac{13.4L O_2}{22.4L O_2} \times \frac{1\text{mol } O_2 @ \text{STP}}{22.4L O_2}$$

1.3 moles of NH₃ @ STP will occupy what Volume?

Given

1.3 moles NH₃

Wanted
L of NH₃

Nov 4 - 1:18 PM

1) Mole-Particle Relationship.
1 mole = 6.02×10^{23} Rep Particles.

2) Mole-Mass Relationship
1 mole = gfm (Molar)

3) Mole-Volume Relationship
* substance must be a gas
* Conditions must be STP.

1 mole = 22.4 L

Nov 4 - 1:22 PM

How many formula units does 73g of NaCl contain?

Given

73g NaCl

Wanted

Form. Units

Oct 31 - 8:25 AM