

Week 6 Packet – Regular Chem

This is *hopefully* all the handouts we will use this week in Regular Chem. Due to the challenging logistics of this year, please offer grace if I miss a handout or if things change during the week. **Please note** – You do not *have* to print. I am just providing the option to make things easier for those who want to print. All of these pages are on the class website, always! www.mychemistryclass.net

***I will put the glue ins for the notes on the front and/or back of the packet cover page like this – since you don't need the cover page for anything you can always just cut these out and glue them in. Trying to save some paper for those of you who are printing! ☺**

Page 34

MOLAR MASS WORKSHEET

Calculate the molar mass.

Show work for #1-5

- 1) Cl_2
- 2) KOH
- 3) FeCl_3
- 4) $(\text{NH}_4)_2\text{SO}_4$
- 5) Prozac, $\text{C}_{17}\text{H}_{18}\text{F}_3\text{NO}$, is a widely used antidepressant that inhibits the uptake of serotonin by the brain. Find its molar mass.

For #6-14, do them in your calculator. You can show your work if you would like to.

- 6) SO_2
- 7) BF_3
- 8) UF_6
- 9) CCl_2F_2
- 10) $\text{Mg}(\text{OH})_2$
- 11) H_3PO_4
- 12) CH_3COOH
- 13) $\text{Pb}(\text{NO}_3)_2$
- 14) $\text{Ga}_2(\text{SO}_3)_3$

Page 36

Molar Conversion WS

Calculate how many moles are in the following masses:

- 1) 25 g of NaCl
- 2) 125 g of H_2SO_4

Calculate the mass (in grams) of the following #of moles:

- 3) 2.5 mol of NaCl
- 4) 0.5 mole of H_2SO_4

How many molecules are in the following number of moles?

- 5) 2 moles of NaCl
- 6) 1.5 moles H_2SO_4

How many moles are in the following # of molecules?

- 7) 3.4×10^{26} of NaCl
- 8) 7.5×10^{19} of H_2SO_4

How many molecules are in the following # of grams?

- 9) 87 g of NaCl
- 10) 45 g of H_2SO_4

How many grams are in the following # of molecules?

- 11) 1.8×10^{28} of NaCl
- 12) 4.5×10^{15} of H_2SO_4

Molar Conversions



Moles → Grams

How many grams does _____ moles of NaCl weigh?

Grams → Moles

How many moles are in _____ g of CO₂?

Moles → Molecules

How many molecules are in _____ moles of H₂O?

Molecules → Moles

How many moles are in _____ molecules?

Grams → Molecules

How many molecules are in _____ grams of H₂O?

Molecules → Grams

How many grams are in _____ molecules of CH₄?

Dimensional Analysis Review

Perform the following conversions using the dimensional analysis technique.

Fill in any portion that is missing

- 1) Convert 32 g to kg

$$\frac{32 \text{ g}}{1000 \text{ g}} \times \frac{1 \text{ kg}}{1000 \text{ g}} = \boxed{0.032 \text{ kg}}$$

- 2) Convert 12.5 mol to molecules

$$\frac{12.5 \text{ mol}}{1 \text{ mol}} \times \frac{6.02 \times 10^{23} \text{ molecules}}{1 \text{ mol}} =$$

- 3) Convert 22.4 L to mL

$$\frac{22.4 \text{ L}}{1 \text{ L}} \times \frac{1000 \text{ mL}}{1 \text{ L}} =$$

- 4) Convert 5 m to cm

$$\frac{5 \text{ m}}{1 \text{ m}} \times \frac{100 \text{ cm}}{1 \text{ m}} =$$

- 5) Convert 17 in to ft

$$\frac{17 \text{ in}}{12 \text{ in}} \times \frac{1 \text{ ft}}{12 \text{ in}} =$$

- 6) Convert 1.3 g of H₂O to molecules

$$\frac{1.3 \text{ g}}{18 \text{ g}} \times \frac{6.02 \times 10^{23} \text{ molecules}}{1 \text{ mol}} =$$

- 7) Convert 10.3 min to hr

$$\frac{10.3 \text{ min}}{60 \text{ min}} \times \frac{1 \text{ hr}}{60 \text{ min}} =$$

- 8) Convert 7.4×10^{24} molecules to mol

$$\frac{7.4 \times 10^{24} \text{ molecules}}{6.02 \times 10^{23} \text{ molecules}} \times \frac{1 \text{ mol}}{6.02 \times 10^{23} \text{ molecules}} =$$

- 9) Convert 4315 mg of CO₂ to moles

$$\frac{4315 \text{ mg}}{44.01 \text{ g}} \times \frac{1 \text{ mol}}{1000 \text{ mg}} =$$

- 10) Convert 0.82 mL to grams if density is 1.35 g/mL

- 11) Convert 0.5 m to cm

- 12) Convert 24 mi/hr to ft/min

$$\frac{24 \text{ mi}}{1 \text{ hr}} \times \frac{1 \text{ ft}}{1609 \text{ m}} \times \frac{1 \text{ hr}}{60 \text{ min}} =$$

- 13) Convert 16 mg/day to g/min

- 14) Convert 2210 mol of Fe(OH)₂ to g

- 15) Convert 2.68×10^{15} molecules of H₂O to atoms

Unit #1 – The Atom

Visual Representation

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Key Items

Costa's Questions

Level 3

Level 2

Level 1

Cross Cutting Concepts

Systems and models

Scale, proportions
and quantity

Stability and Change