

KEY - PRE-STOICH MOLE REVIEW (moles #9)

- 1) 22.4 L
- 2) Look up the masses of the element(s) in the formula and add as necessary. At PHUHS we round to two decimal places.
- 3) 6.02×10^{23}
- 4) Atom, ion, molecule, formula unit (answers vary for examples)
- 5) At PHUHS we round to two decimal places.
- 6) Standard temperature and pressure (0 degrees C or 273.15 K, and 1 atm)
- 7) Dimensional analysis: math with units
- 8) What we call the “teacher number” is the given number in the problem that begins the calculation. You have to begin with the given so the math is set up correctly.

NOTE: In real math problems, the units need a chemical formula with them (such as mol CO_2), and r.p. must be specified (*atom, ion, molec, fun*).

$$9) \text{ (teacher number) L} \times \frac{1 \text{ mol}}{22.4 \text{ L}} = \text{(answer) mol}$$

$$10) \text{ (teacher number) L} \times \frac{1 \text{ mol}}{22.4 \text{ L}} \times \frac{\text{(molar mass) g}}{1 \text{ mol}} = \text{(answer) g}$$

$$11) \text{ (teacher number) mol} \times \frac{22.4 \text{ L}}{1 \text{ mol}} = \text{(answer) L}$$

$$12) \text{ (teacher number) L} \times \frac{1 \text{ mol}}{22.4 \text{ L}} \times \frac{6.02 \times 10^{23} \text{ r.p.}}{1 \text{ mol}} = \text{(answer) r.p.}$$

$$13) \text{ (teacher number) g} \times \frac{1 \text{ mol}}{\text{(molar mass) g}} = \text{(answer) mol}$$

$$14) \text{ (teacher number) r.p.} \times \frac{1 \text{ mol}}{6.02 \times 10^{23} \text{ r.p.}} \times \frac{\text{(molar mass) g}}{1 \text{ mol}} = \text{(answer) g}$$

$$15) \text{ (teacher number) g} \times \frac{1 \text{ mol}}{\text{(molar mass) g}} \times \frac{22.4 \text{ L}}{1 \text{ mol}} = \text{(answer) L}$$

$$16) \text{ (teacher number) mol} \times \frac{\text{(molar mass) g}}{1 \text{ mol}} = \text{(answer) g}$$

$$17) \text{ (teacher number) mol} \times \frac{6.02 \times 10^{23} \text{ r.p.}}{1 \text{ mol}} = \text{(answer) r.p.}$$

18) (teacher number) g x $\frac{1 \text{ mol}}{\text{(molar mass) g}}$ x $\frac{6.02 \times 10^{23} \text{ r.p.}}{1 \text{ mol}}$ = (answer) r.p.

19) (teacher number) r.p. x $\frac{1 \text{ mol}}{6.02 \times 10^{23} \text{ r.p.}}$ = (answer) mol

20) (teacher number) r.p. x $\frac{1 \text{ mol}}{6.02 \times 10^{23} \text{ r.p.}}$ x $\frac{22.4 \text{ L}}{1 \text{ mol}}$ = (answer) L