Remind your partner of the rules for significant figures. (when do zeros count?)

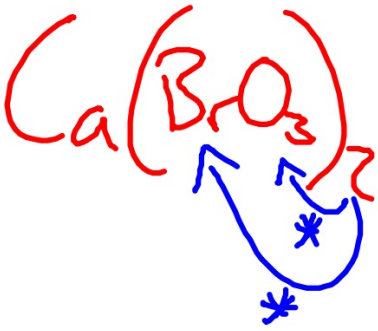
How many atoms are in 1 mole of a substance?
How many atoms are in 1 mole of a calcium?
How many atoms are in 6.8 mole of a substance?

$$\frac{2.80\times10^{25}\ \text{atoms} * 1\ \text{mol}}{6.02\times10^{23}\ \text{atoms}} = 46.5\ \text{moles}$$

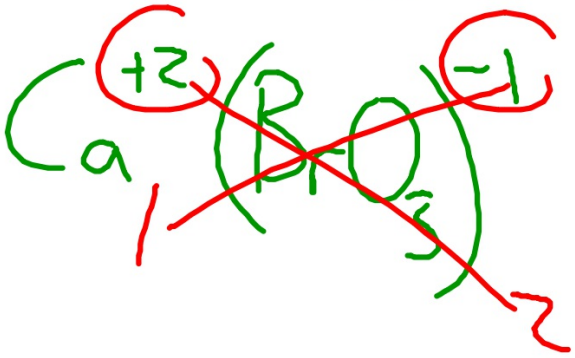
$$?\ \text{atoms} = .360\ \text{mol Ag}$$

$$\frac{.360\ \text{mol} * 6.02\times10^{23}\ \text{atoms}}{1\ \text{mol}} = 2.17\times10^{23}\ \text{atoms}$$

$$\frac{2.14\ \text{mol} * 6.02\times10^{23}\ \text{molecules}}{1\ \text{mol}} = 1.29\times10^{24}\ \text{molecules}$$



NH_4NO_3



C_2H_6

$12.0\ g/mol\ (2) = 24\ g/mol$

$1.0\ g/mol\ (6) = 6\ g/mol$

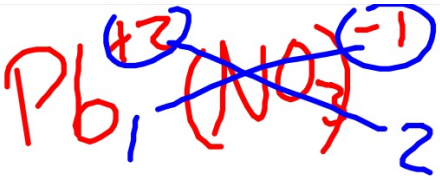
$24\ g/mol + 6\ g/mol = 30\ g/mol$

PCl_3

$P \rightarrow 31.0\ g/mol\ (1) = 31\ g/mol$

$Cl \rightarrow 35.5\ g/mol\ (3) = 106.5\ g/mol$

$31\ g/mol + 106.5\ g/mol = 137.5\ g/mol$



$Pb(NO_3)_2$

$207\ g/mol\ (1) = 207\ g/mol$

$14.0\ g/mol\ (2) = 28\ g/mol$

$16.0\ g/mol\ (6) = 96\ g/mol$

$331.2\ g/mol$

N_2O_5

$14.0\,g/mol\,(2) = 28\,g/mol$

$16.0\,g/mol\,(5) = 80\,g/mol$

$108\,g/mol$

$(NH_4)_2CO_3$

~~NH_4CO_3~~

~~$NH_4(CO_3)_2$~~

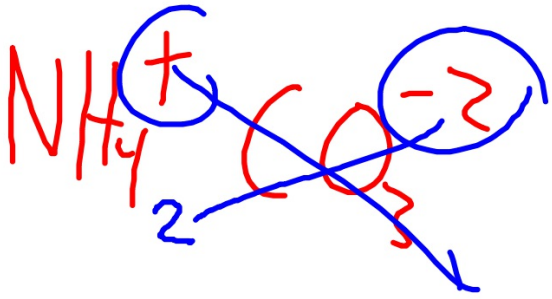
N -> 14.0 g/mol (2) = 28 g/mol

H -> 1.0 g/mol (8) = 8 g/mol

C -> 12.0 g/mol (1) = 12 g/mol

O -> 16.0 g/mol (3) = 48 g/mol

total = 96 g/mol



$Sr(CN)_2$

Sr → 87.6 g/mol (1)

C → 12.0 g/mol (2)

N → 14.0 g/mol (2)

139.6 g/mol

$NaHCO_3$
84 g/mol

HON VII

N_2O_5
108 g/mol

0.720 mol CO

? g CO

molar mass of CO

12.0 g

16.0 g

> 28.0 g/mol

$$\frac{.720 \text{ mol CO} \times 28.0 \text{ g}}{1 \text{ mol}} =$$

20.2 g CO

N_2 = Nitrogen gas

$14(2) = 28\ g/mol$

C_2H_6

molar mass = 30 g/mol

$$\frac{11.0\,g \times \frac{1\,mol}{30\,g}}{} = .367\,mol\ C_2H_6$$

STP

Temp: 0°C

Pressure: 1 atm

22.4 Liters / mol

? volume

$$\frac{3.20 \times 10^{26}\ \text{mole} \times 6.0 \times 22.4\ \text{L}}{1\ \text{mole}} =$$

$$7.17 \times 10^{27}\ \text{L}$$

? moles

33.6L

@ STP

22.4L/mol

$$\frac{33.6\ L * 1\ mol}{22.4\ L} = 1.50\ mol\ SO_3$$

? moles

2.80×10^{25} atoms Si

$$\frac{2.80 \times 10^{25}\ \text{atoms} \times 1\ \text{mol}}{6.02 \times 10^{23}\ \text{atoms}} = 46.5\ \text{mol}$$

? atoms

0.360 mol Ag

$$0.360\ \text{mol Ag} \times \frac{6.02 \times 10^{23}\ \text{atoms}}{1\ \text{mol}} = 2.17 \times 10^{23}\ \text{atoms}$$

? molecules

2.14 mole CO

$$\frac{2.14 \text{ mole} * 6.02 \times 10^{23} \text{ atoms}}{1 \text{ mole}} = 1.29 \times 10^{24} \text{ molecules CO}$$

? moles

4.65×10^{24} molecules NO_2

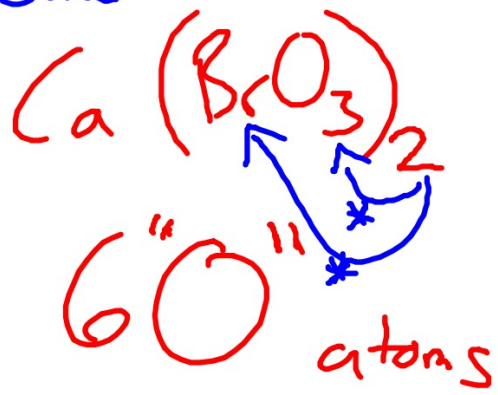
NH_4NO_3

$PbSO_4$

P_2O_5

K_2CrO_4

Calcium Bromate



C_2H_6

C → $(12.0\ g/mol)(2) = 24\ g/mol$

H → $(1.0\ g/mol)(6) = 6\ g/mol$

$24\ g/mol + 6\ g/mol = 30\ g/mol$

PCl_3

P → (31.0 g/mol)(1) = 31.0 g/mol

+

Cl → (35.5 g/mol)(3) = 106.5 g/mol

137.5 g/mol

$Pb(NO_3)_2$

Pb → (207.2 g/mol)(1) = 207.2 g/mol

N → (14.0 g/mol)(2) = 28.0 g/mol

O → (16.0 g/mol)(6) = 96 g/mol

331.2 g/mol

$(NH_4)_2^{+1}(CO_3)^{-2}$

$Sr(CN)_2$

N → (2)

H → (8)

(→ (1)

O → (3)

$NaHCO_3$

0.720 mol CO

? g CO

? molar mass CO

12.0 g/mol

+ 16.0 g/mol

28.0 g / mol

.720 mol * 28.0 g / 1 mol = 20.2 g

K_2CO_3

$NaOH$

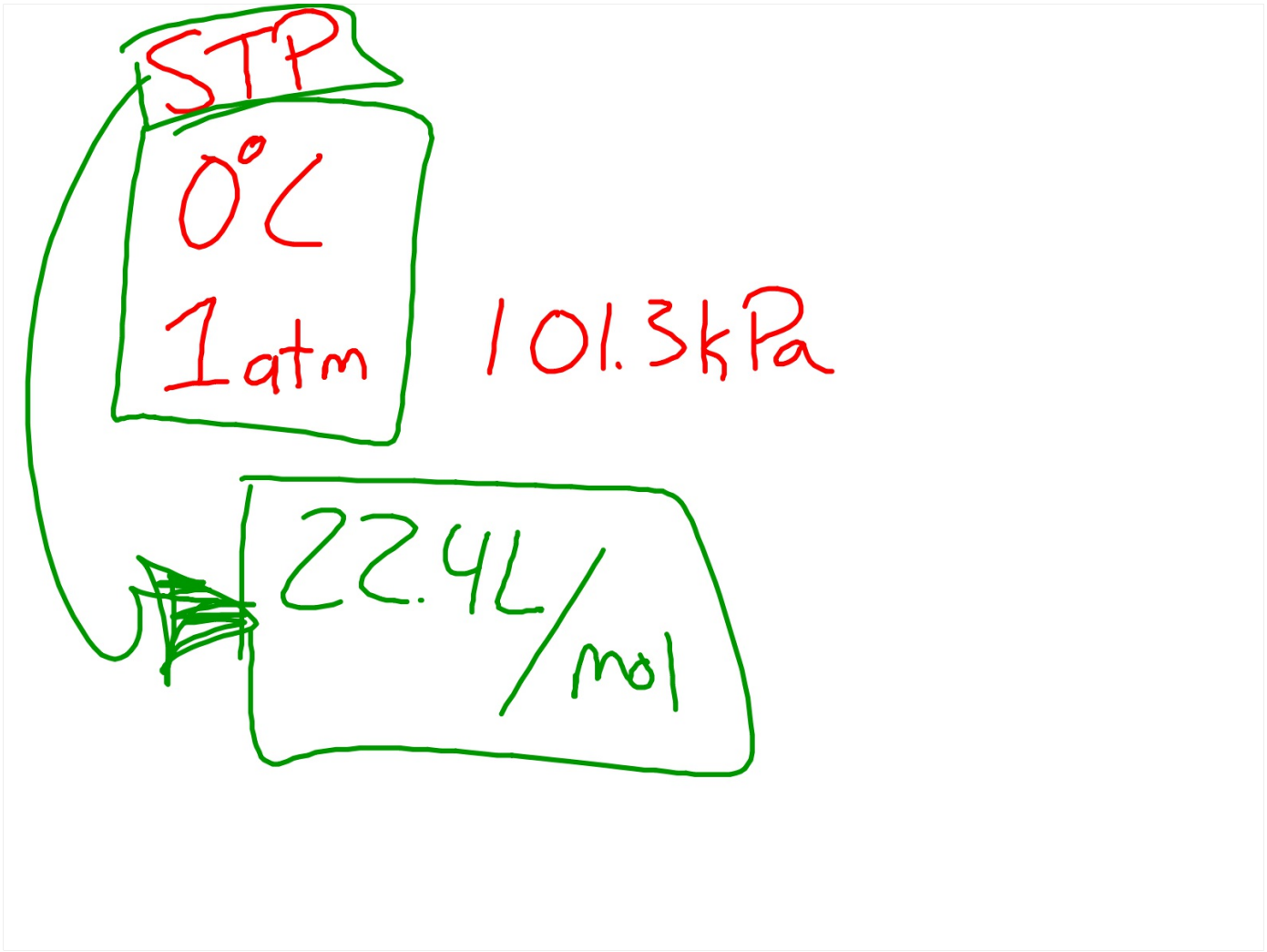
N_2

C_2H_6

30 g/mol

11.0 g Ethane

$$\frac{11.0\ g \times \frac{1\ mol}{30\ g}}{} = .367\ mol$$


STP
0°C
1 atm
101.3kPa
22.4L/mol

3.20×10^{26} moles

? volume (Liters)

22.4 L/mol @STP

$$\frac{(3.20 \times 10^{26}\ \text{moles}) * 22.4\ \text{L}}{1\ \text{moles}} = 7.17 \times$$

$$\frac{33.6\,L \mid 1\ mol}{\mid 22.4\,L} = 1.50\ mol$$