Al: ~~1~~ 2Cl: ~~3~~ 6Ca: ~~1~~ 3SO₄: ~~1~~ 3

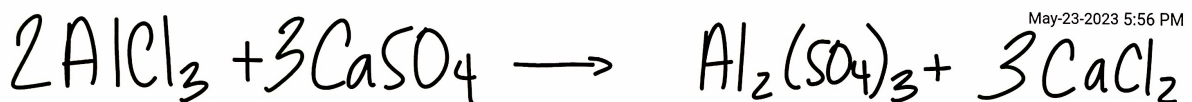
2 mol : 3 mol : 1 mol : 3 mol

Al: 2

Cl: ~~2~~ 6Ca: ~~1~~ 3SO₄: 3

Recap (100pts)

- Balance + mol ratio
- Mol ratio conversion (mol A → mol B)
- 2 and 3 step mass stoichiometry
- 2 Ideal gas law
- 4-5 Filling In Blank

2 mol AlCl₃ : 3 mol CaSO₄ : 1 mol Al₂(SO₄)₃ : 3 mol Cl₂2.60 mol AlCl₃, convert to mol CaCl₂

$$\frac{2.60 \cancel{\text{mol AlCl}_3}}{2 \cancel{\text{mol AlCl}_3}} \times 3 \text{ mol CaCl}_2 = 3.90 \text{ mol CaCl}_2$$

Mass Stoichiometry Chart

② 1, 2 and 1, 2, 3

Step 1

mass_A → mol_A

start g A	1 mol A
	MM _g A

Step 2

mol_A → mol_B

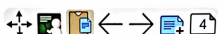
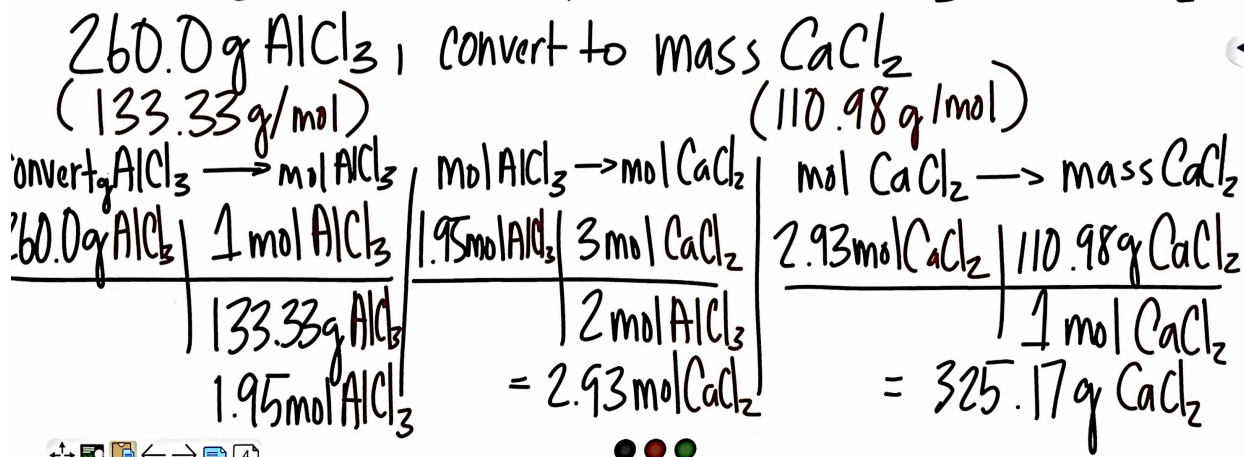
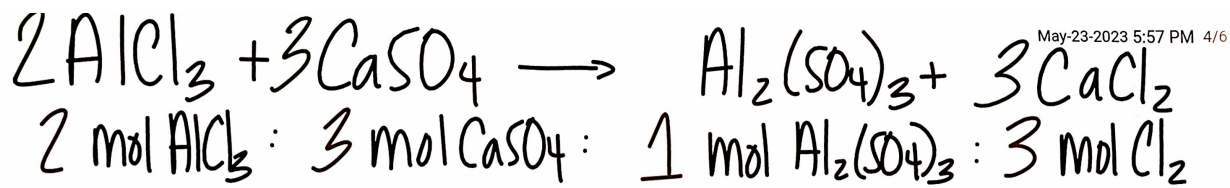
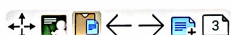
step 1 mol A	* mol _B
	* mol A

Step 3

mol_B → mass_B

step 2 mol B	MM _g B
	1 mol B

* Molar Ratio



Fundamental [def. of P, V, T , and n]

Boyles : $P_1 V_1 = P_2 V_2$ (Indirect)

Charles : $\frac{V_1}{T_1} = \frac{V_2}{T_2}$ (direct)

Gay-Lussacs $\frac{P_1}{T_1} = \frac{P_2}{T_2}$ (direct)

Avogadro $\frac{V_1}{n_1} = \frac{V_2}{n_2}$ (direct)

Combined gas law

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

Ideal gas law
[Adds " n ", mol]

$$PV = nRT$$

$$R = \text{Ideal (Universal) Const.}$$

$\text{Cl}_2(g)$: $V = 2.10 \text{ L}$ $n = 1.10 \text{ mol}$ $T = 310.0 \text{ K}$

$R = 0.0821 \frac{\text{L} \cdot \text{atm}}{\text{mol} \cdot \text{K}}$ $P = \underline{\hspace{1cm}} \text{ atm}$

$$P = \frac{nRT}{V} = \frac{1.10 \text{ mol} \cdot 0.0821 \frac{\text{L} \cdot \text{atm}}{\text{mol} \cdot \text{K}} \cdot 310.0 \text{ K}}{2.10 \text{ L}}$$

$$= \underline{13.33 \text{ atm}}$$

$$PV = nRT$$

$$P = \frac{nRT}{V}$$

$$V = \frac{nRT}{P}$$

$$T = \frac{PV}{nR}$$

$$n = \frac{PV}{RT}$$