

Dec 4-7:51 AM

Ec 1

$\frac{17.7 \text{ kJ}}{\text{mole S}}$

, — g S,

22.5 kJ

<del>1 mole S</del>	22.5 kJ	32 g S
17.7 kJ		<del>1 mole S</del>

Dec 4-8:16 AM

**(EC2)**  $E = R_H \left( \frac{1}{n_1^2} - \frac{1}{n_2^2} \right)$  Find  $\lambda$   
 $n=2 \rightarrow n=1$

$E = R_H \left( \frac{1}{4} - \frac{1}{1} \right) = -\frac{3}{4} R_H$  Go

$E = hf$   $c = f \lambda$   $\frac{1}{\lambda} = \frac{hc}{hf R_H}$

$\frac{1}{\lambda} = \frac{hc}{hf R_H}$   $f = \frac{c}{\lambda}$   $= \frac{1}{\lambda} \frac{hc}{R_H}$

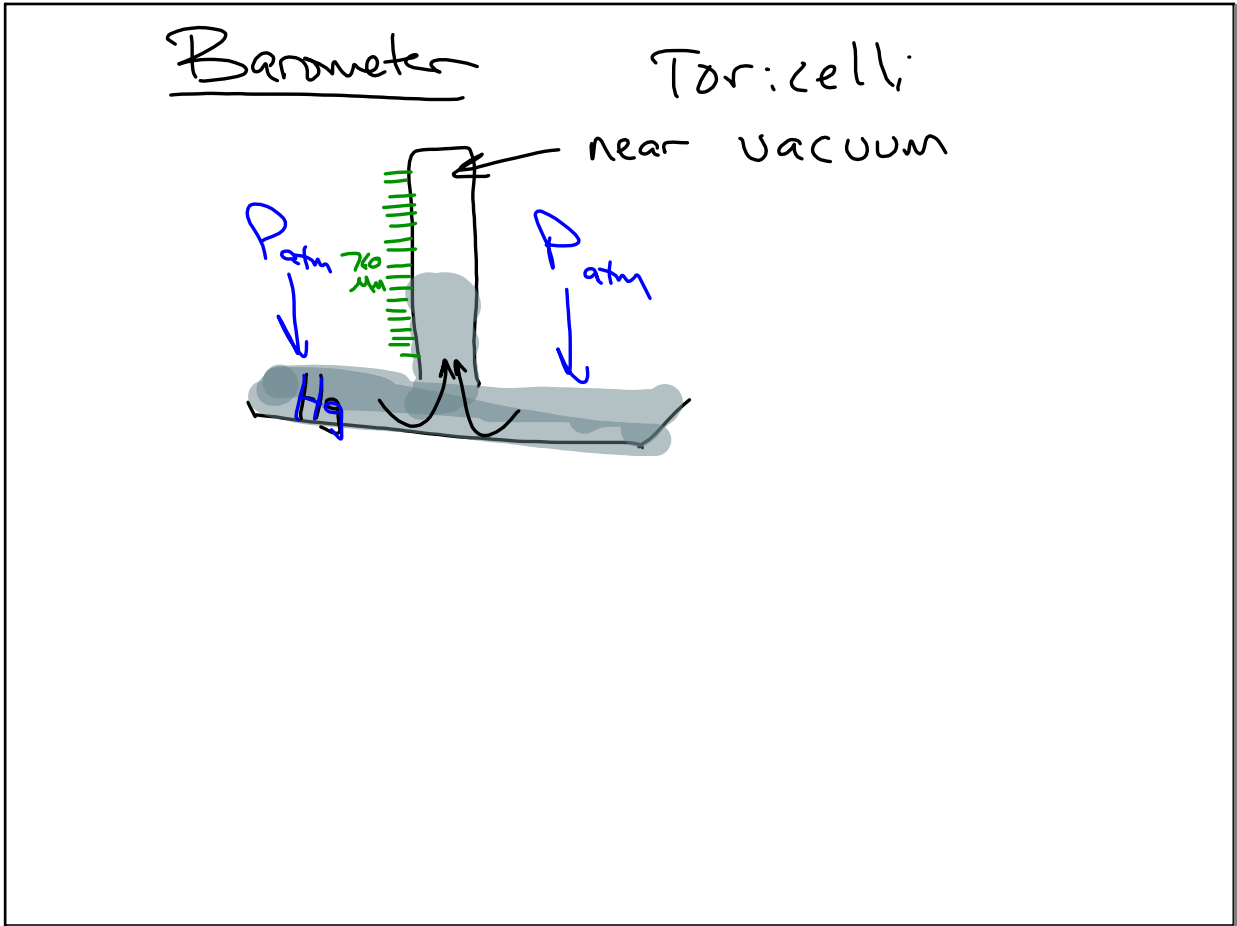
$\frac{1}{\lambda} = \frac{hc}{hf R_H}$

Dec 4-8:17 AM

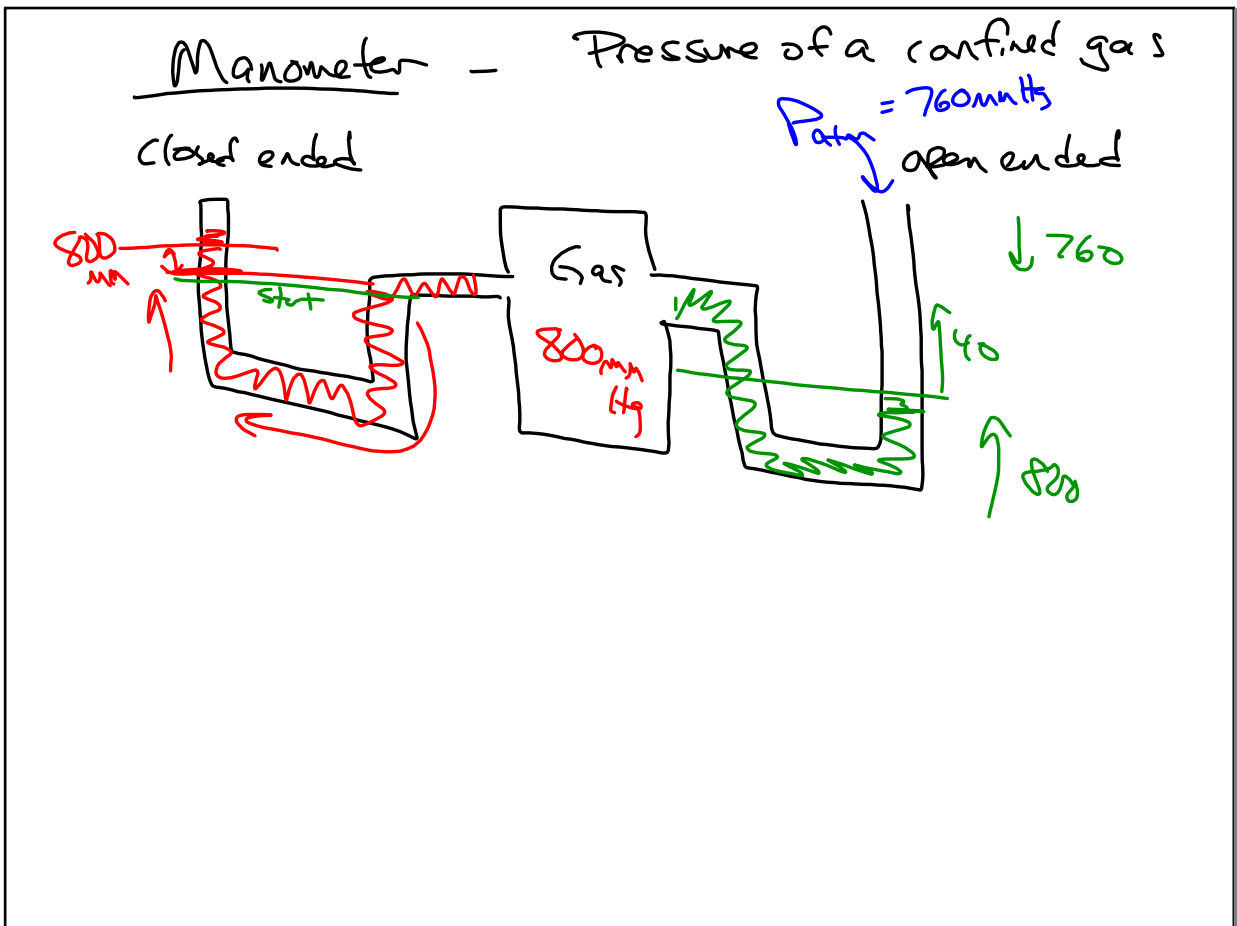
$\frac{\text{Pressure}}{1} = \frac{\text{Force}}{\text{Area}} = \frac{\text{Newtons}}{\text{m}^2}$

1 atm = 101.35 kPa = 760 torr  
 = 760 mmHg  
 = 76 cmHg

Dec 4-8:56 AM



Dec 4-9:00 AM



Dec 4-9:04 AM

**Gas LAWS**

**Boyles**

P and V

V ↓ P ↑

inverse / indirect mult.

$P * V = \text{constant}$

↓ 20 \* 1 = 20  
 ↓ 10 \* 2 ↑ = 20  
 5 \* 4 = 20

**Charles**

V and T

expand, molecules faster

$\frac{V}{T} = \text{constant}$

**DIRECT**  
Division.

$\frac{P}{T} = \text{constant}$

**combined GAS LAW.**

**Guy-Lussac**

P and T

Molecules faster, pushes harder

$\frac{P}{T} = \text{constant}$

Dec 4-9:10 AM

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

P = any units (P<sub>1</sub> and P<sub>2</sub> same units)

V = →

**NO ZERO**

**T MUST BE IN KELVIN**

Dec 4-9:16 AM

Ideal Gas equation

at 1 mde                      1 mde of any gas = 22.4 l of that Gas

(STP)

$$PV = nRT$$

↑  
Moles
← Universal gas constant

Dec 4-9:19 AM

$$PV = nRT$$

$$R = \frac{PV}{nT} = \frac{1 \text{ l} \times 1 \text{ atm}}{1 \text{ mole} \times 1 \text{ K}} = 0.08206 \frac{\text{l} \cdot \text{atm}}{\text{mole} \cdot \text{K}}$$

Dec 4-9:22 AM

$$PV = nRT$$

$$\frac{PV}{l} = \frac{gRT}{MW}$$

$$\frac{MW}{l} = \frac{gRT}{PV}$$

$$\frac{g}{l} = \frac{PV(MW)}{RT}$$

$$\frac{\text{moles}}{l} = \frac{\text{grams}}{MW}$$

Dec 4-9:25 AM

Density of a Gas

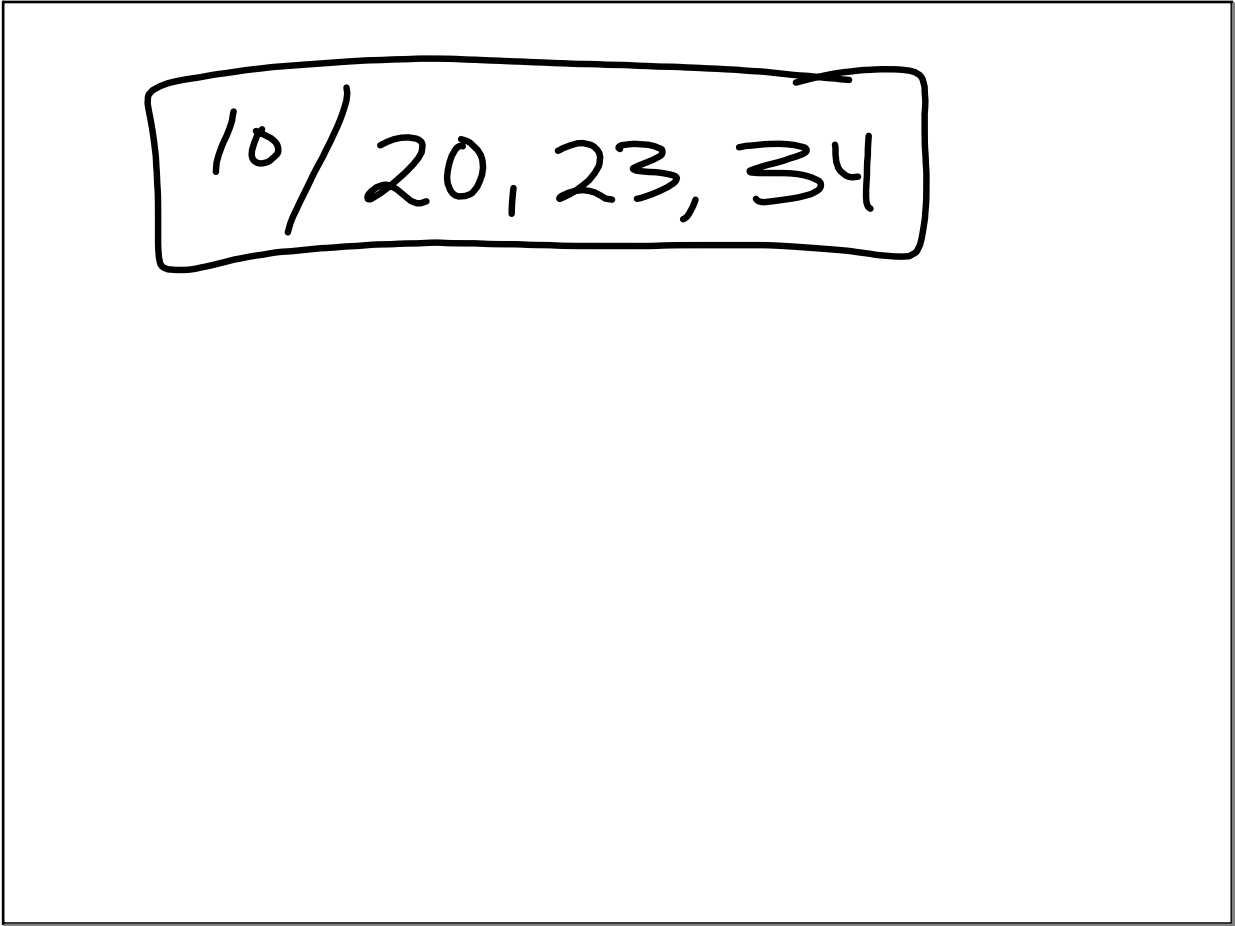
$$PV = nRT$$

$$\frac{PV}{l} = \frac{gRT}{MW}$$

$$d = \frac{g}{V} = \frac{P(MW)}{RT}$$

$$\frac{\text{mass}}{\text{Volume}} = \frac{g}{V} = d$$

Dec 4-9:27 AM



Dec 4-9:32 AM