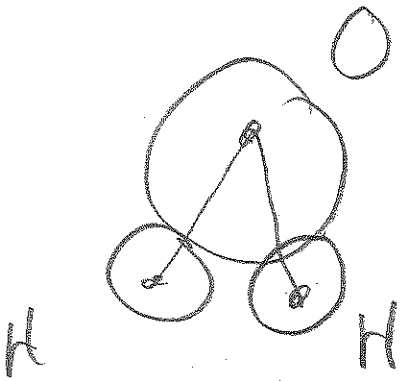
TEST 3 / FINAL REVIEW: 11-18-13 PT 2 (1)

See CH18 summary p614

" CH19 " p643

comments on 11-18-13 notes

CH18 # of H_2O molecule:



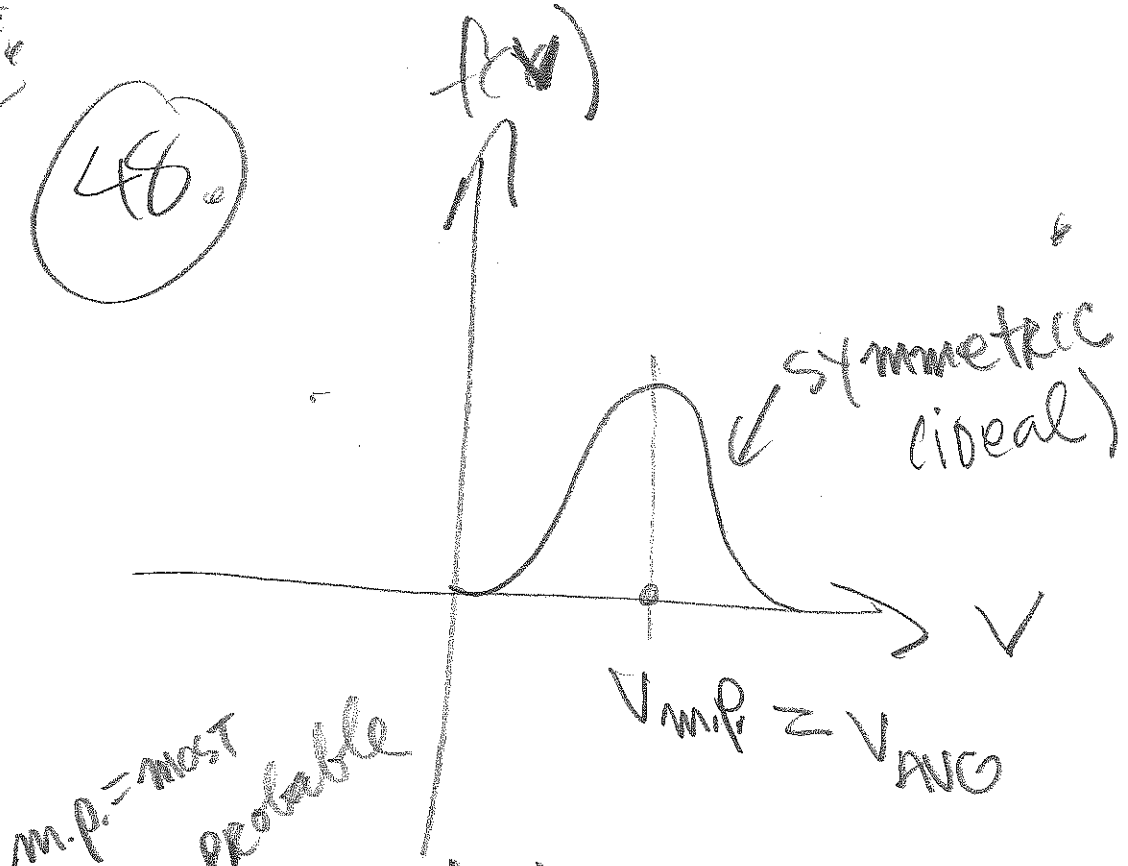
f = # of degrees of freedom

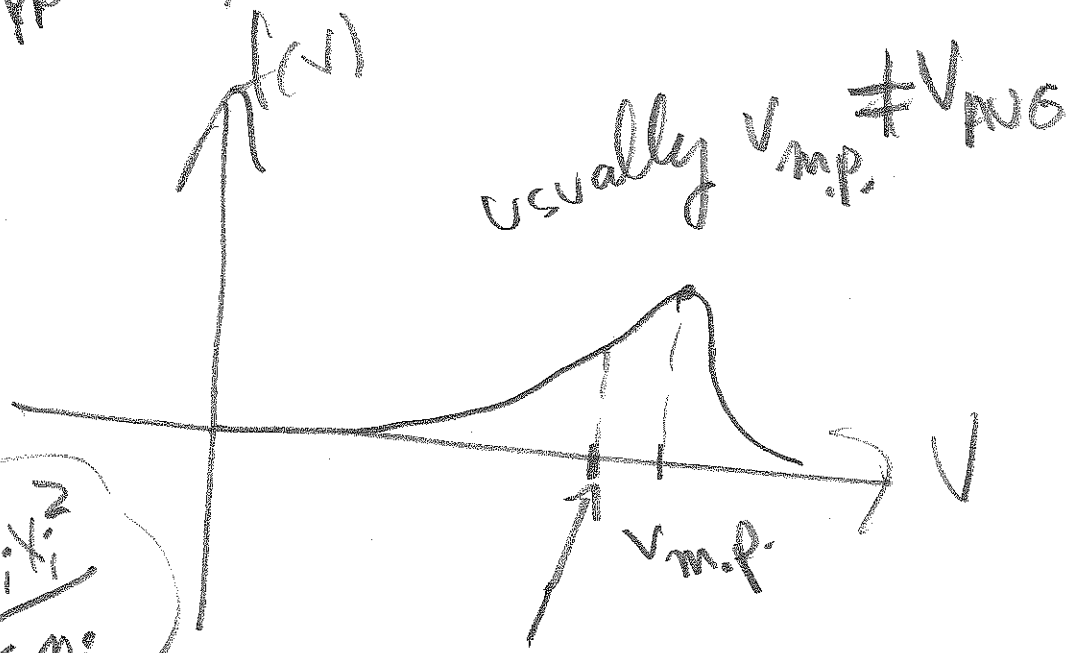
(a.) $C_v = \frac{f}{2} \cdot R$

(b.) Compare; include vibrational.

CWLG

40.





$$x_{AV}^2 = \frac{\sum m_i x_i^2}{\sum m_i}$$

32. @

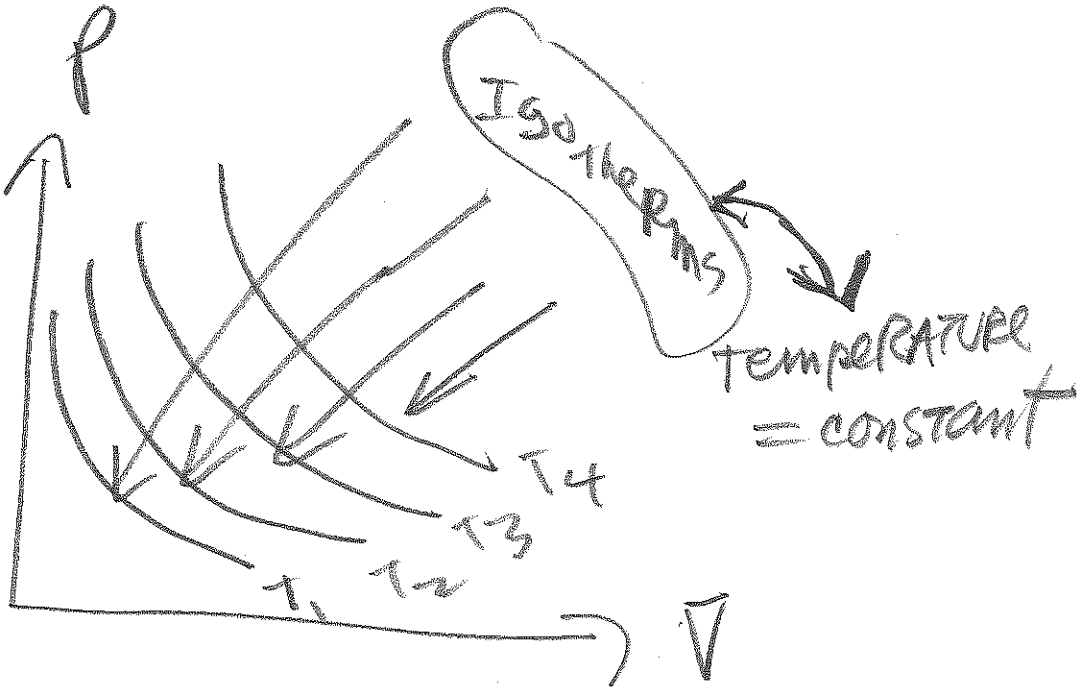
$$x = \frac{\sum m_i x_i}{\sum m_i} = x_{AVG}$$

6.

$$x_{rms} = \sqrt{(x^2)_{AV}}$$

CH 9:

11.(a)



$$T_4 > T_3 > T_2 > T_1$$

$$1 \text{ ATM} = 1.036 \times 10^5 \frac{N}{m^2}$$

11(b.)

$$W = \int_i^f P\,dV = \text{area under curve}$$

prelecture due 4:20 PM 11-18-13

@: compare C_w and C_v

C_w = 1 cal / g°C

CH 18 : # 43

CH 19 : # 56

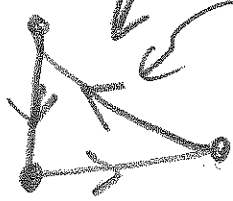
CH 19 HINT: #46

HINT:
- @: $C_v = \frac{5}{2}R$. $W = 0$, $\Delta Q = \Delta U$
- b: $\Delta Q = mC\Delta T$
  - i. for water. (C_w)
  - ii. $\Delta Q = nC_v \cdot \Delta T$

AIR: FIND n and mass.

ALSO: $PV = nRT$

$\Delta Q = \Delta U + W$



c → b ADIABATIC

$\Delta Q = \Delta U + W$ (ADIABATIC)

Note:
c → b,
Adiabatic compression, temperature increases.

$T_b > T_c$

sec 19.8 → Adiabatic

$\Delta Q = 0$:

$\Delta U = -W$

use

$PV^{\gamma} = \text{const.}$

or

$TV^{\gamma-1} = \text{const.}$

Adiabatic: $W = nC_v(T_1 - T_2)$

$a \to c$ $P = \text{const.}$

$\Delta Q = nC_p \cdot \Delta T$

$C_p = C_v + R$

or $W = \frac{1}{\gamma - 1}(P_1V_1 - P_2V_2)$