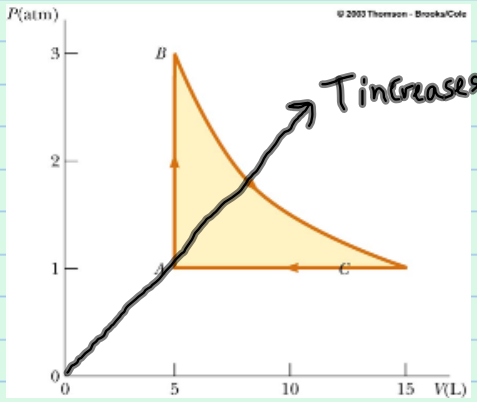
Review



$A \to B$	isovolumetric	$\Delta V = 0$
$B \to C$	" thermal	$\Delta T = 0$
$C \to A$	" baric	$\Delta P = 0$

$PV = nRT$

$R = 0.082 \frac{L \cdot atm}{mol \cdot K}$

$= 8.315 \frac{J}{mol \cdot K}$

$L \to m^3$ $\quad 1000L = 1m^3$

$atm \to Pa$ $\quad 1.013 \times 10^5 Pa = 1atm$

$\Delta U = Q + W$ $\quad W = p\Delta V$

$\Delta U = \frac{3}{2} nRT$

#3 A $KE = \frac{3}{2} k_B T$

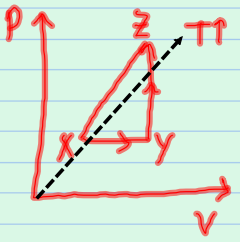
#4 if $V_1 = V_2$, $T_2 = 3T_1$

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

$$\frac{P_1 \cancel{V_1}}{\cancel{T_1}} = \frac{P_2 \cancel{V_2}}{3\cancel{T_1}}$$

$3P_1 = P_2$

5.



$W = P\Delta V$ $\Delta V\uparrow$ $W-$

$\Delta T\uparrow$ $Q+$

$\Delta U = Q + W$

$X \to Y$ $\Delta V\uparrow$ so $W<0$

c) only choice

6) $Y \to Z$ $\Delta V = 0$ $P\uparrow$

if $Q>0$, and $W=0$ $\Delta U = \overset{>0}{Q} + \overset{0}{W}$

$\Delta U > 0$

c)

7. $KE = \frac{3}{2} k_B T$

300K → 600K

so 2E (or KE)

d)

8. adiabatic $\Delta Q = 0$

d

9)

ΔU all same

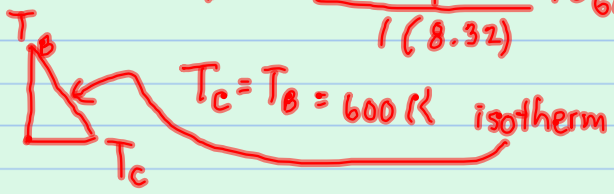
FR

$P_a = \frac{N}{m^2}$ $N \cdot m = J$

1.a) T_A $PV = nRT$ $T = \frac{PV}{nR} = \frac{1 \times 10^5 \frac{N}{m^2} (25 \times 10^{-3} m^3)}{1 mol \left(8.32 \frac{J}{mol K}\right)}$

T_B $\frac{2 \times 10^5 (25 \times 10^{-3})}{1(8.32)} = 600K$

$T_A = 300K$



$T_C = T_B = 600K$ isotherm

b) W = area under curve

$\frac{1}{2}(b)(h) + bh$

c) = b answer