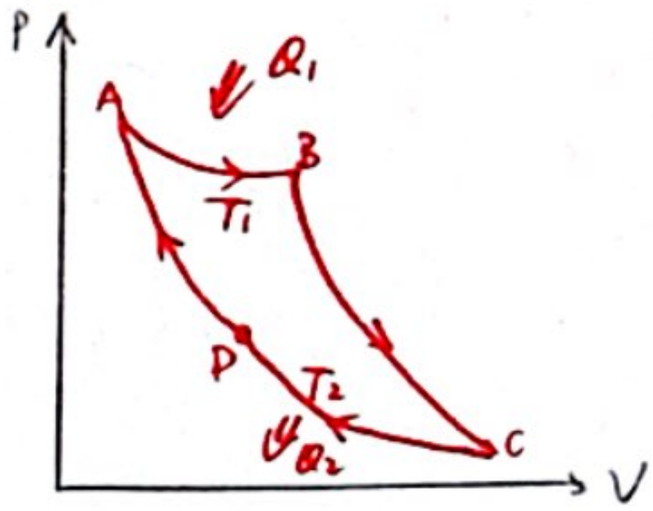
Carnot Cycle

- a reversible cyclic process made up of 2 isothermal and 2 adiabatic stages.



AB : ~~Adiabatic~~ Isothermal . Q_1 enters the system

BC : Adiabatic . $T_1 \rightarrow T_2$

CD : isothermal . Q_2 leaves the system

DA : Adiabatic . $T_2 \rightarrow T_1$

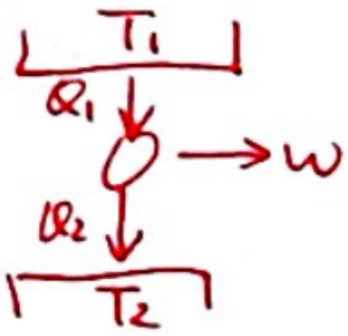
AB: thermal contact with the hot reservoir and allow the system to expand.

BC : thermally isolated the system and allow the system to expand more (cools down at the same time).

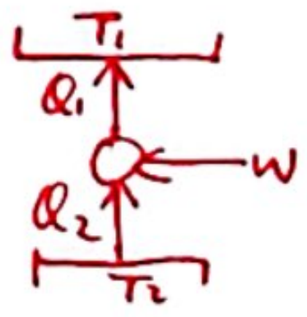
CD : Contact the container with a cold reservoir and compress the system

DA : thermally isolate the system and allow further compression (gets hotter at the same time).

- work done by the system $W = Q_1 - Q_2$



- Reverse this cycle to make it a refrigerator



- Efficiency $\eta = \frac{W}{Q_1} = 1 - \frac{Q_2}{Q_1}$.