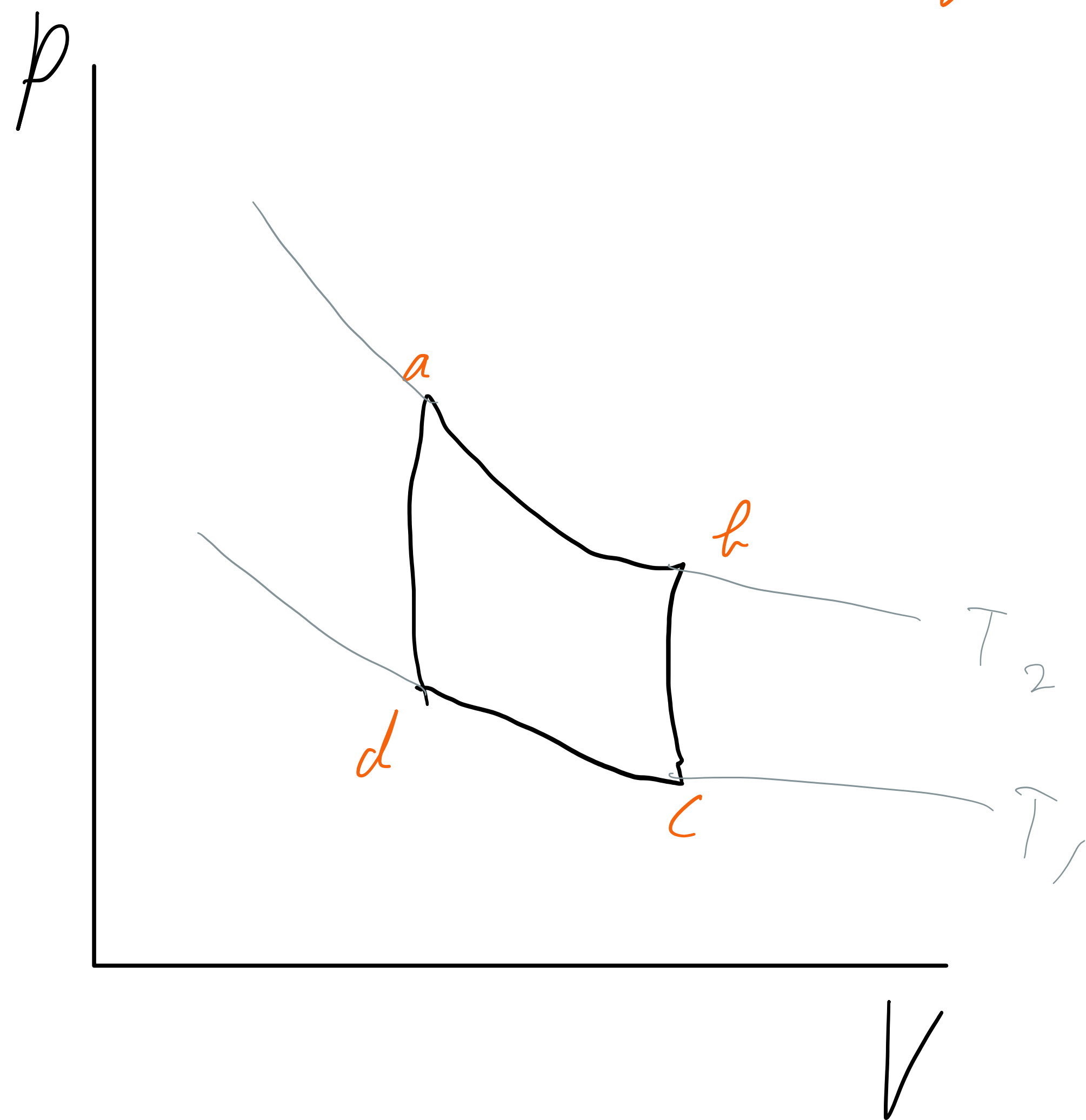
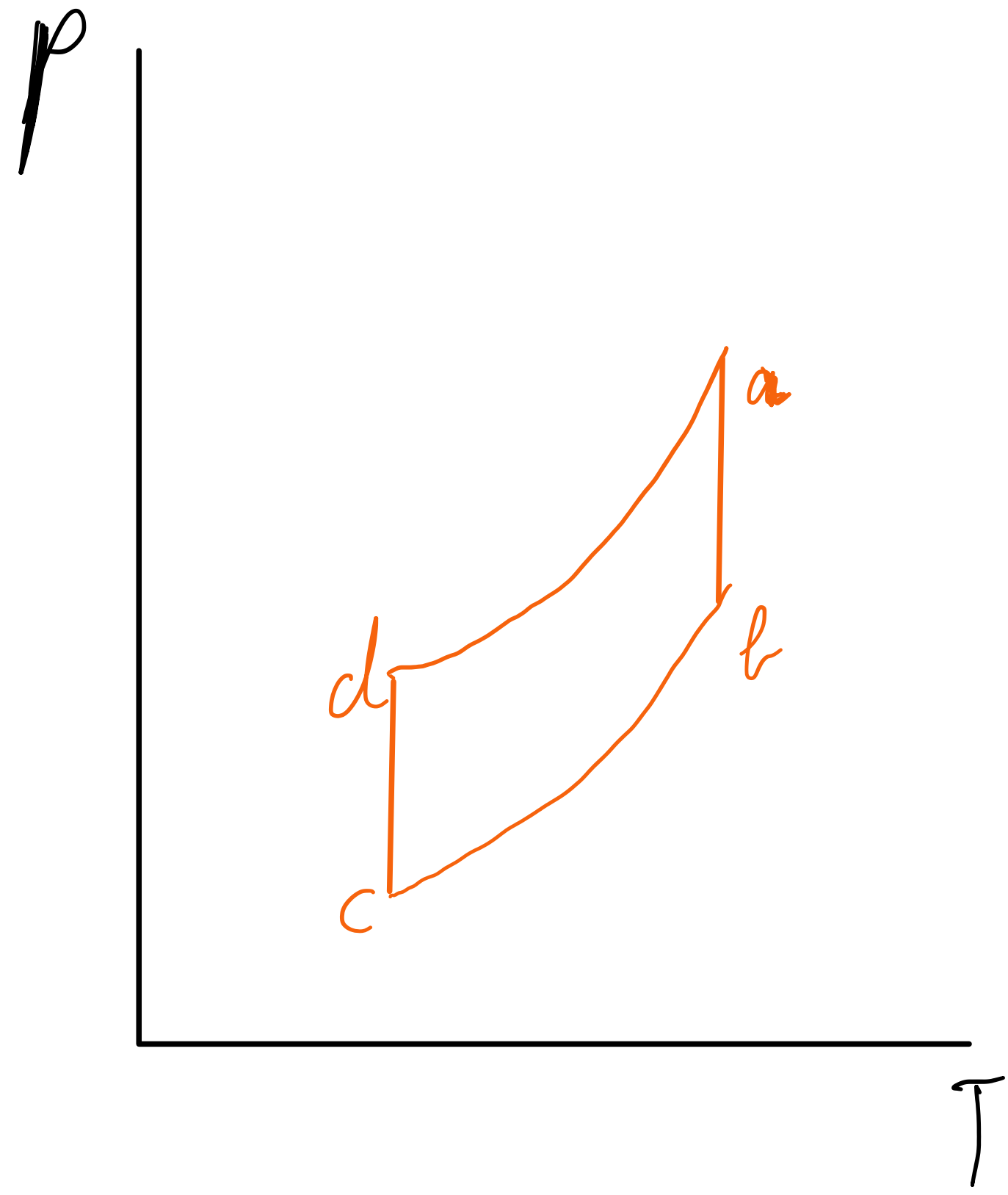
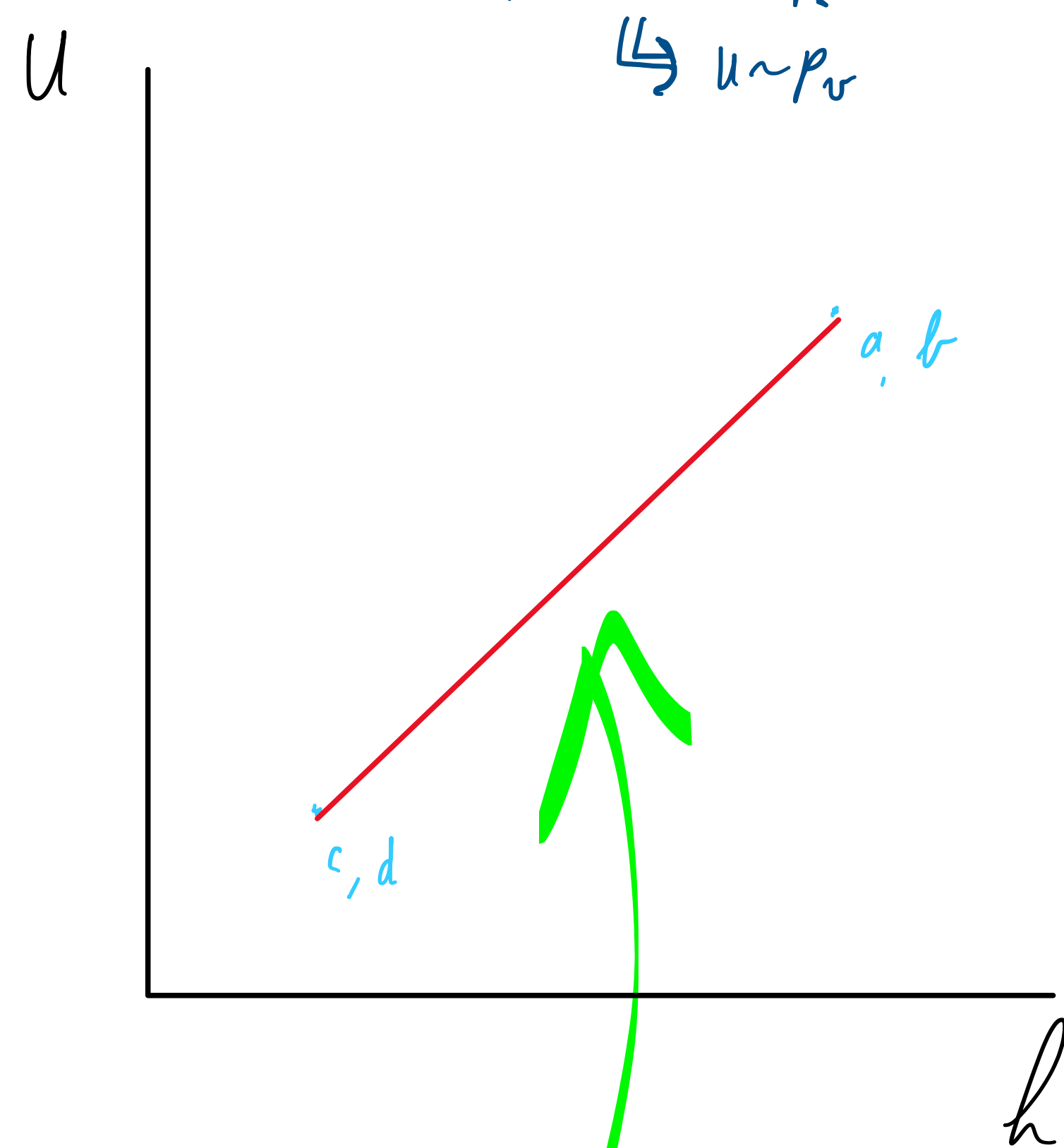


ideal gas: $PV = nRT$
 $u = u(T)$ linearly

$PV \sim nR u \Rightarrow u \sim \frac{Pv}{R} \Rightarrow u \sim Pv$



$T_2 > T_1$

why is this a straight line?

$h = u + Pv$

on isotherm: $PV = \text{constant}$ and $u = u(T) \Rightarrow u + PV = \text{constant}$
 on adiabat: $PV^\gamma = \text{constant}$

$$\left. \begin{aligned} PV &= nRT \\ PV^\gamma &= \text{constant} \end{aligned} \right\} \begin{aligned} V &= \frac{nRT}{P} \\ P \left(\frac{nRT}{P} \right)^\gamma &= \text{constant} \end{aligned}$$

$P^{1-\gamma} T^\gamma = \text{constant}$