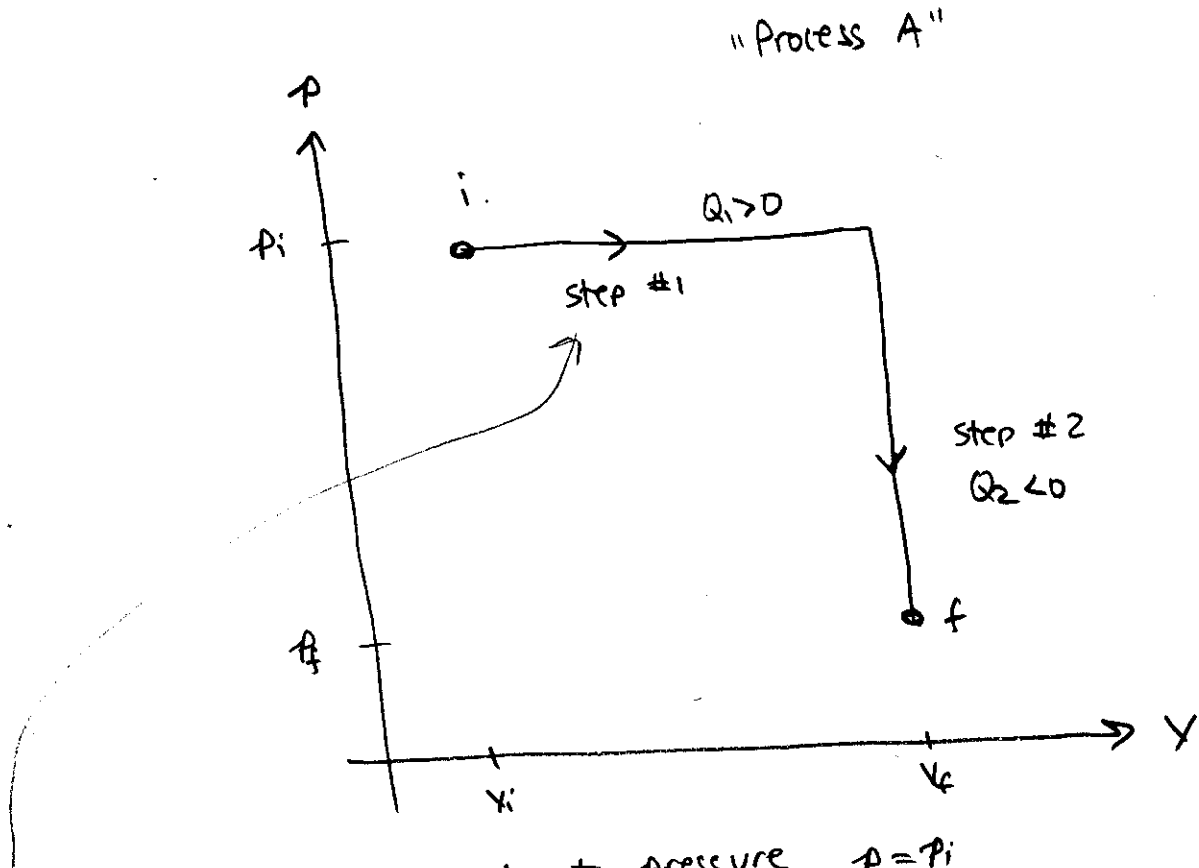


But there are other ways to drive the system from  $i \rightarrow f$  :



step #1 occurs at constant pressure  $p = p_i$

- leave lead weight unchanged

- raise  $T$ , driving  $V \rightarrow V_f$ ;  
 This adds heat  $Q_1$  to the system

step #2 is at constant volume  $V = V_f$

- wedge the piston in place

- lower  $T$ , which drives  $p \rightarrow p_f$ ;  
 This removes heat, so  $Q_2 < 0$

This process resulted in a total heat  $Q_A = Q_1 + Q_2$  flowing into the system.

What is the Work  $W_A$  for this process?

positive  
 ↓  
 negative  
 ↓  
 $Q_1 + Q_2$  flowing into the system.