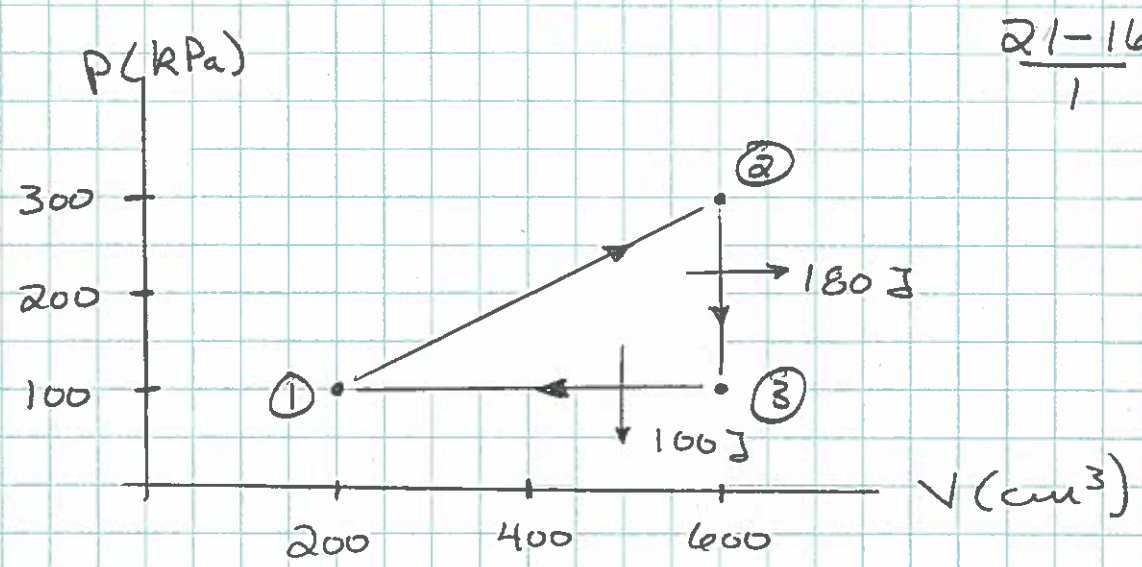

Heat shown in out of the system, so

$$Q_C = 100\,J + 180\,J = 280\,J$$

and, $W_{OUT} = W_S$ (for cycle) = area bounded by cycle

$$= \frac{1}{2}(V_3 - V_1)(P_2 - P_1)$$

So, $W_{OUT} = 40\,J$

and $Q_H = W_{OUT} + Q_C = \underline{320\,J}$

and $\eta = \frac{W_{OUT}}{Q_H} = \underline{0.125} = \underline{12.5\%}$