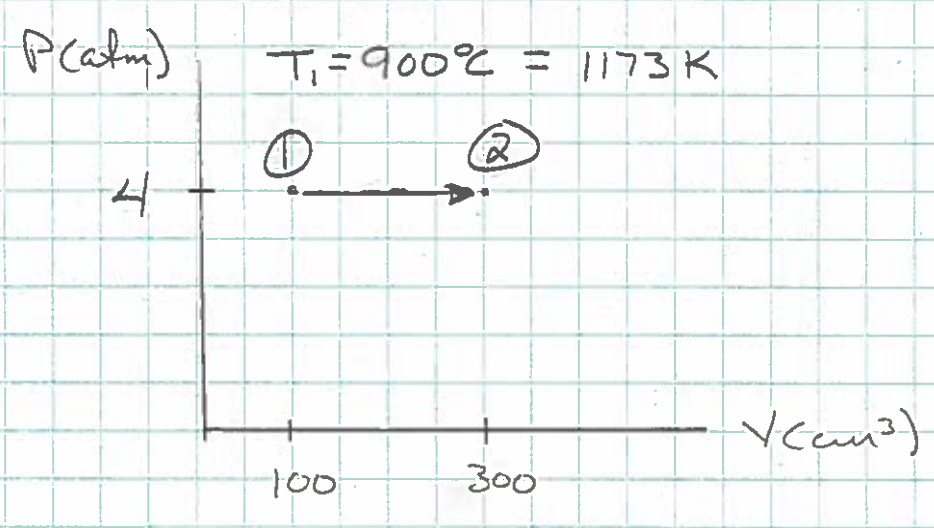

a.) Process is isobaric.

b.) for P = const: $PV = nRT \Rightarrow \frac{P}{nR} = \frac{T}{V} = \text{const.}$

So $\frac{T_1}{V_1} = \frac{T_2}{V_2} \Rightarrow T_2 = \left(\frac{V_2}{V_1}\right) T_1 = 3519\ K$

$= 3246°C$

c.) at point 1:

$P_1 V_1 = nRT_1 \Rightarrow n = \frac{P_1 V_1}{RT_1} = 4.155 \times 10^{-3}\ mol$

where

$P_1 = 4\ atm = 4.052 \times 10^5\ Pa$

$V_1 = 100\ cm^3 = 1 \times 10^{-4}\ m^3$