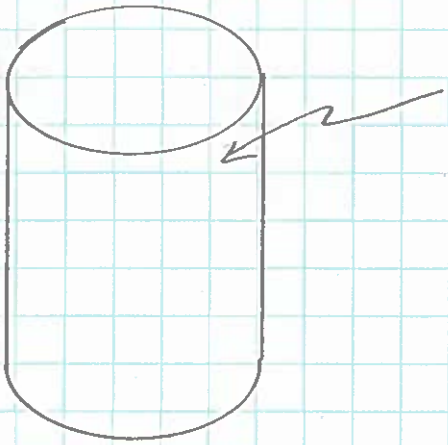

$n = 2$ mols

$P_1 = 1\ \text{atm} = 1.013 \times 10^5\ \text{Pa}$

$T_1 = 30°C = 303\ \text{K}$

a.) find Volume V_1:

$$PV = nRT$$

$$V_1 = \frac{nRT_1}{P_1} = \underline{0.0497\ m^3}$$

b.) for $T_2 = 130°C = 403\ \text{K}$, find P_2

NOTE: V = constant, so:

$$PV = nRT$$

$$\frac{nR}{V} = \frac{P}{T} = \text{constant}$$

So, $\frac{P_2}{T_2} = \frac{P_1}{T_1}$

and, $P_2 = P_1\left(\frac{T_2}{T_1}\right) = \underline{1.33\ \text{atm}}$

Note: can use P in atm here, but must have T in Kelvin.