1. (5 points) A 1.0 liter sealed can contains 4.0 grams of carbon dioxide (CO₂) (mₚ=12g/mole, m₀=16g/mole). What is the pressure inside the can in atmospheres when it is heated to 200 °C? R=8.314 J/(mole·K). Assume that CO₂ is an ideal gas. 1 atm = 1.013x10⁵ Pa.

\[
PV = nRT
\]

\[
\frac{N}{\frac{12+2(16)}{g/mole}} = \frac{4.0}{4.4 g/mole} = \frac{1}{11} \text{ moles}
\]

\[
P = \frac{nRT}{V} = \frac{\left(\frac{0.09 \text{ moles}}{}\right)\left(8.314 \text{ J} / \text{mole} \cdot \text{K}\right)\left(473 \text{ K}\right)}{10^{-3} \text{ m}^3}
\]

\[
P = 3.575 \times 10^5 \text{ Pa} \left(\frac{1 \text{ atm}}{1.013 \times 10^5 \text{ Pa}}\right)
\]

\[
P = 3.53 \text{ atm} = 3.5 \text{ atm}
\]