

4. An isothermal process is one in which  $T_i = T_f$  which implies  $\ln(T_f/T_i) = 0$ . Therefore, Eq. 21-4 leads to

$$\Delta S = nR \ln \left( \frac{V_f}{V_i} \right) \implies n = \frac{22.0}{(8.31) \ln(3.4/1.3)} = 2.75 \text{ mol} .$$