

Gabarito Lista 3 - 1ª Lei da Termodinâmica

Prof. Elvis Soares

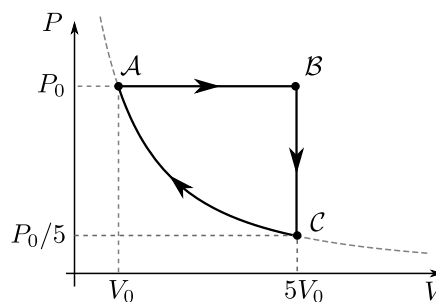
1. (a) $W = 169 \text{ J}$
(b) $Q = 2260 \text{ J}$
(c) $\Delta U = 2091 \text{ J}$.
(d) $W/\Delta U \approx 8\%$.

2. (a) $W = 1,7 \times 10^{-2} \text{ J}$.
(b) $Q = 1,2 \times 10^4 \text{ J}$.
(c) $\Delta U = 1,2 \times 10^4 \text{ J}$
(d) $W/\Delta U \approx 10^{-6}$.

3. (a) Mostre!
(b) $1,3 \text{ kg/m}^3$.

4. (a) $P = r^{-\gamma} P_0$.
(b) $W = \frac{P_0 V_0 (1 - r^{1-\gamma})}{\gamma - 1}$.
(c) $Q = 0$.
(d) $\Delta U = -\frac{P_0 V_0 (1 - r^{1-\gamma})}{\gamma - 1}$.
(e) $\frac{T}{T_0} = r^{1-\gamma}$.

5. (a)



$$(b) T = \frac{5P_0 V_0}{nR}.$$

$$(c) \Delta U = \frac{C_v}{R} 4P_0 V_0.$$

$$(d) \Delta U = -\frac{C_v}{R} 4P_0 V_0.$$

$$(e) \Delta U = 0$$

$$W = Q = P_0 V_0 (4 - \ln 5).$$

$$6. V = \left(\frac{P_0 + \rho g H}{P_0 + \rho g h} \right)^{1/\gamma} V_0.$$

$$7. (a) P/3.$$

$$(b) 3T.$$