

Gabarito Lista 3 - 1ª Lei da Termodinâmica

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1. (a) $M/m = 19$.

(b) $T = 5,7^\circ\text{C}$.

2. (a) $\dot{Q} = \frac{2\kappa(T' - T)}{d}(lh + wh + lw)$.

(b) $4320 \text{ W} = 14740 \text{ BTU/h}$.

(c) A taxa de calor seria reduzida para $2/3$ da original.

(d) A taxa de calor seria reduzida para $1/10$ da original.

3. (a) $\kappa = \frac{\kappa_1\kappa_2\kappa_3}{\kappa_1\kappa_2 + \kappa_1\kappa_3 + \kappa_2\kappa_3}$.

(b) $\kappa = \kappa_1 + \kappa_2 + \kappa_3$.

(c) Na situação (a).

4. (a) $P = r^{-\gamma}P_0$.

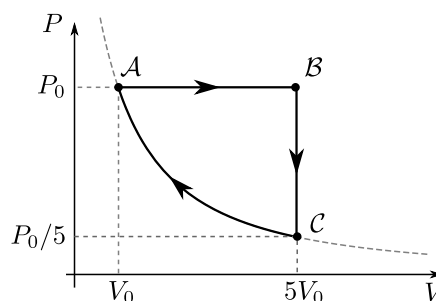
(b) $W = \frac{P_0V_0(1 - r^{1-\gamma})}{\gamma - 1}$.

(c) $Q = 0$.

(d) $\Delta U = -\frac{P_0V_0(1 - r^{1-\gamma})}{\gamma - 1}$.

(e) $\frac{T}{T_0} = r^{1-\gamma}$.

5. (a)



(b) $T = \frac{5P_0V_0}{nR}$.

(c) $\Delta U = \frac{C_v}{R}4P_0V_0$.

(d) $\Delta U = -\frac{C_v}{R}4P_0V_0$.

(e) $\Delta U = 0$

$W = Q = P_0V_0(4 - \ln 5)$.

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