

$$a) \eta_{\text{Carnot}} = 1 - \frac{T_f}{T_q} = 1 - \frac{T_0}{2T_0} = \frac{1}{2} = 0.5$$

C

b) A

$$c) T_f V_f^{\gamma-1} = T_q V_q^{\gamma-1} \Rightarrow \frac{V_q}{V_f} = \sqrt[{\gamma-1}]{\frac{T_f}{T_q}} \Leftrightarrow \frac{V_B}{V_A} = \sqrt[{\gamma-1}]{\frac{1}{2}} = 0.5^{\frac{1}{0.4}} = 0.5^{2.5} \quad B$$

$$d) \Delta S_{Fq} = -\frac{Q_{Fq}}{T_F} = -\frac{56 \text{ kJ}}{2 \cdot T_0} = -2.8 \text{ J/K} \Rightarrow B$$

e) C //