

14,

$$W_g = 200 \text{ J} \quad p = \text{all} \quad \kappa = 1,4 \quad Q = ?$$

$$\begin{aligned} W &= -p \Delta V \\ W_g &= -W \\ p &= \text{all} \end{aligned}$$

$$\begin{aligned} E_b &= \frac{f}{2} nRT = \frac{f}{2} pV \\ pV &= nRT \end{aligned}$$

$$\kappa = \frac{c_p}{c_v} = \frac{\frac{f}{2} + 1}{\frac{f}{2}}$$

$$\Delta E_b = Q + W$$

$$\kappa = \frac{\frac{f}{2} + 1}{\frac{f}{2}} \rightarrow f = \dots \checkmark$$

$$pV = nRT$$

$$W_g = p \Delta V = nR \Delta T = 200 \text{ J}$$

$$\Delta E_b = Q - W_g$$

$$\frac{f}{2} nR \Delta T = Q - W_g$$

$$\frac{f}{2} W_g + W_g = Q$$

$$Q = \dots \checkmark$$