

$$\begin{aligned}
 \Delta W &= p (V_f - V_i) = 1.01 \times 10^5 (3342 - 2) \times 10^{-3} \\
 &= 1.01 \times 3340 \times 10^2 \text{ J} \\
 &= 3373.4 \times 10^2 \text{ J} = 0.33734 \times 10^6 \text{ J}
 \end{aligned}$$

$$\Delta Q = mL_v = 2 \times 2.3 \times 10^6 \text{ J} = 4.6 \times 10^6 \text{ J}$$

using 1st Law $\Delta Q = \Delta U + \Delta W$

$$4.6 \times 10^6 = \Delta U + 0.33734 \times 10^6$$

$$\begin{aligned}
 \Delta U &= (4.6 - 0.33734) \times 10^6 \\
 &= 4.26266 \times 10^6 \text{ J}
 \end{aligned}$$