P #13

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$P = .800 \text{ atm} = .8 \times 10^5 \text{ Pa}$

$V_1 = 9.00 \text{ L} = .009 \text{ m}^3$
$V_2 = 2.00 \text{ L} = .002 \text{ m}^3$

a) For constant pressure: $W = -P \cdot \Delta V$

$= -(.8 \times 10^5 \text{ Pa})(.002 \text{ m}^3 - .009 \text{ m}^3)$

$\boxed{W = +560 \text{ J}}$

b) $W = +560 \text{ J}$

$Q = -400 \text{ J}$ (heat lost)

$\Delta U = Q + W$

$= (-400 \text{ J}) + (560 \text{ J})$

$\boxed{\Delta U = +160 \text{ J}}$