

PChen 1

10/19/2020

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$$\text{P.G.1) } w_{\text{rev}} = - \int_{0.030}^{0.025} kl \, dl = - \int_{0.030}^{0.025} 15.0 \, N \cdot m^{-1} \, dl$$
$$= -\frac{1}{2} kl^2 \Big|_{0.030}^{0.025} = -7.5 [0.025^2 - 0.03^2] = \cancel{-0.0020625} \text{ J}$$
$$0.0020625 \text{ J}$$

$$\Delta A = w_{\text{rev}} = 0.0020625 \text{ J}$$

$$\Delta S = \frac{q_{\text{rev}}}{T} = \frac{0.015 \text{ J}}{310 \text{ K}} = 4.83871 \times 10^{-5} \text{ J} \cdot \text{K}^{-1}$$

$$\Delta U = \Delta A + T\Delta S = 0.017 \underset{0.0020625}{\text{J}}$$
$$(T\Delta S = q_{\text{rev}}) \uparrow$$