

a)
$$E = \frac{|w \text{ total}|}{|q \text{ ab}|} = \frac{pR(T \text{ not} - T \text{ cold}) \text{ for } \frac{y_{\text{ab}}}{y_{\text{ab}}} = T \text{ not} - T \text{ cold}}{|pRT \text{ not} \text{ for } \frac{y_{\text{ab}}}{y_{\text{ab}}} = T \text{ not}} = T \text{ not}}$$

$$= 1 - \frac{T \text{ cold}}{T \text{ not}} > 0$$

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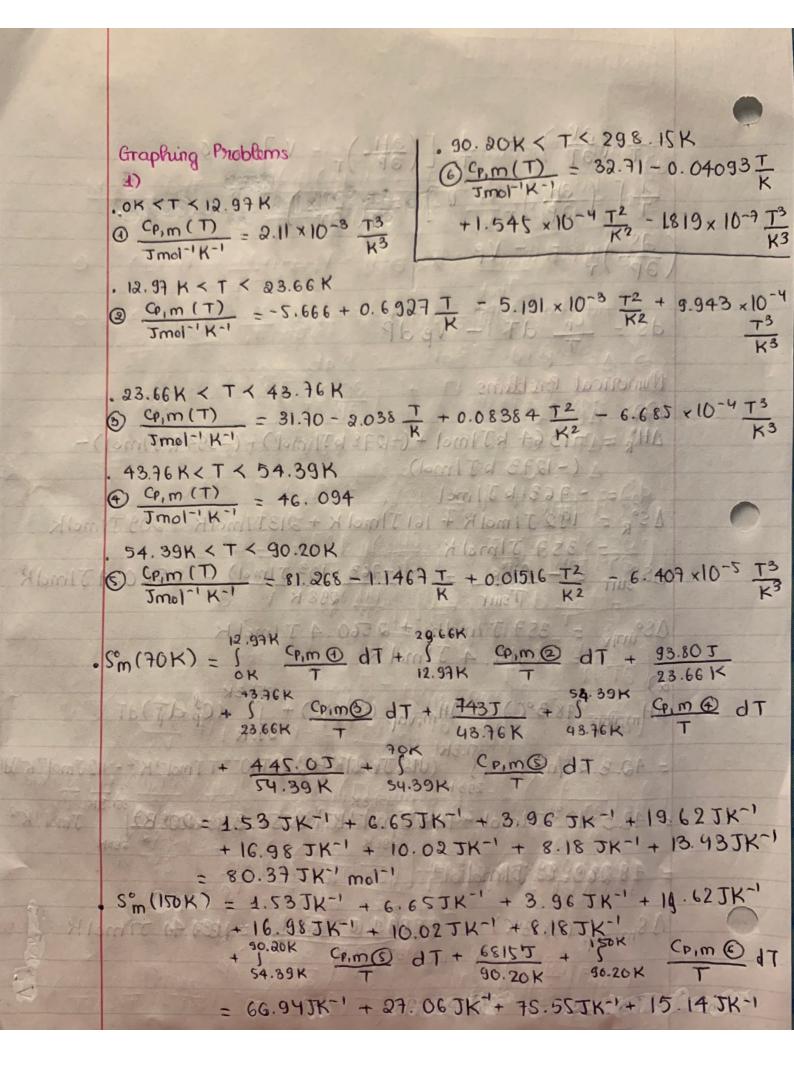
$$= 1 - \frac{T \text{ cold}}{T \text{ not}}$$

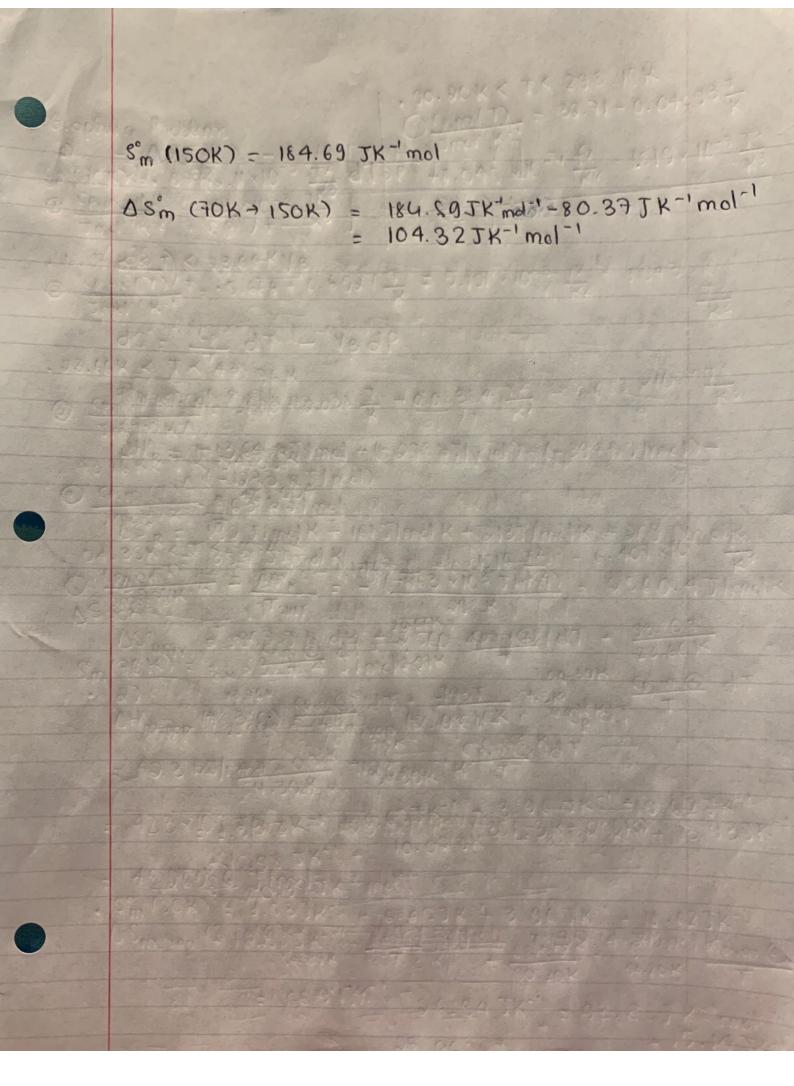
$$-\frac{1}{T}\left(\frac{\partial V}{\partial T}\right)^{2} - \frac{1}{T^{2}}\left[\left(\frac{\partial H}{\partial P}\right)_{T} - V\right]_{J=0} = 0$$

$$\frac{1}{T}\left[\left(\frac{\partial H}{\partial P}\right)_{T} - V\right]_{J=0} = -\left(\frac{\partial V}{\partial T}\right)$$

$$\frac{\partial S}{\partial P}_{T} = -V\beta$$

$$\frac{\partial S$$





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