[tex125] Dry ice

The T-dependence of the vapor pressure of CO_2 below the triple point $(T_t = -56.2°C)$ is well represented by the empirical relation

$$\ln \left(\frac{p(T)_{coex}}{1\text{atm}} \right) = 16 - \frac{3116\text{K}}{T}.$$

The molar heat of melting is $L_{sl} = 8330\text{J}$ with negligible T-dependence.
(a) Find the pressure p_t at the triple point.
(b) Find the latent heat of sublimation, L_{sg}, and the latent heat of vaporization, L_{lg}.
(c) Find the vapor pressure $p(T)_{coex}$ at $20°C$.

Solution: