10–21. Show that $g_n(\lambda)$ defined by Eq. (10–47) obeys the following recursion formula:

$$g_{n-1} = \frac{\partial g_n}{\partial(\ln \lambda)}$$

Also show that for λ close to unity, that

$$g_{5/2}(\lambda) = 2.363(-\ln \lambda)^{3/2} + 1.342 + 2.612 \ln \lambda - 0.730 (\ln \lambda)^2 + \cdots$$

From these two results, show that the discontinuity of $(\partial C_V/\partial T)$ at $T = T_c$ for an ideal Bose-Einstein gas is

$$\left(\frac{\partial C_V}{\partial T}\right)_{T \to T_c + \varepsilon} - \left(\frac{\partial C_V}{\partial T}\right)_{T \to T_c - \varepsilon} = \frac{3.66Nk}{T_c}$$