12.29 We are asked in this problem to calculate the fraction of lattice sites that are Schottky defects for CsCl at its melting temperature (645°C), assuming that the energy for defect formation is 1.86 eV. In order to solve this problem it is necessary to use Equation 12.3 and solve for the N_s/N ratio. Rearrangement of this expression and substituting values for the several parameters leads to

$$\frac{N_s}{N} = \exp\left(-\frac{Q_s}{2kT}\right)$$

$$= \exp\left[-\frac{1.86 \text{ eV}}{(2)(8.62 \times 10^{-5} \text{ eV/K})(645 + 273 \text{ K})}\right]$$

$$= 7.87 \text{ x } 10^{-6}$$