

Answers

1. $r = a_0$
2. $r = r_0$
3. $x = \frac{a}{2}$
4. A minimum at $r = 2^{1/6}d$
5. $\Pi = \frac{RTx}{V}$
6. a. $\frac{1}{kT^2} \sum_i E_i e^{E_i/kT}$ b. $\frac{1}{kT^2} \frac{\sum_i E_i e^{E_i/kT}}{q(T)}$
7. $3Nk \left(\frac{h\nu_0}{kT} \right)^2 \frac{e^{h\nu_0/kT}}{(e^{h\nu_0/kT} - 1)^2}$
8. $w = 2,74 \cdot 10^3 \text{ J}$
9. $\Delta G = \frac{\Delta G_1}{T_1} T + a - bT \ln T - cT^2 - \frac{a}{T_1} T + Tb \ln T_1 + cT_1 T$
10. a. $[A] = [A]_0 e^{-kt}$
b. By rewriting the equation in (a) as $\ln[A] = -kt + \ln[A]_0$ a straight line is obtained with the slope $-k$ and the result is $k = 2,06 \cdot 10^{-3} \text{ s}^{-1}$