

8. doměr úkol - oprava 2

1) c) pro  $T \rightarrow \infty$ ,  $C_V = \frac{n}{2} N$

$$E = \int \frac{E g(E)}{\frac{E-m}{kT} + 1} dE = \frac{gV}{(2\pi\hbar)^n} \frac{1}{s} \int_{n-1}^{\infty} \frac{E^{\frac{n}{2}-1} \cdot E dE}{e^{\frac{E-m}{kT}} + 1}$$

$$= \frac{gV}{(2\pi\hbar)^n} \frac{1}{s} S_{n-1} \frac{n}{s} (2\pi m kT)^{\frac{n}{2}} \cdot kT F_{\frac{n}{s}+1}\left(\frac{m}{kT}\right)$$

$$N = \frac{gV}{(2\pi\hbar)^n} \frac{1}{s} S_{n-1} (2\pi m kT)^{\frac{n}{2}} \cdot F_{\frac{n}{s}}\left(\frac{m}{kT}\right)$$

$$E = \frac{n}{s} N kT \frac{F_{\frac{n}{s}+1}\left(\frac{m}{kT}\right)}{F_{\frac{n}{s}}\left(\frac{m}{kT}\right)} \quad \text{pro } T \rightarrow \infty \quad F_A(y) \approx e^y$$

$$E \approx \frac{n}{s} N kT$$

$$C_V = \left( \frac{\partial E}{\partial T} \right)_V = \underline{\underline{\frac{n}{s} N k}}$$