$$H(q_{|P}) = \sum_{i=1}^{N} h_i(q_i, p_i)$$

$$e^{-\frac{H(q_{|P})}{k_B T}} = e^{-\frac{1}{k_B T}\left(\sum_{i=1}^{N} h_i(q_i, p_i)\right)}$$

$$= \prod_{i=1}^{N} e^{-\frac{1}{k_B T} h_i(q_i, p_i)}$$

$$h_i(q_i, p_i) = h_j(q_j, p_j) \quad \forall \, i, j$$

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$$= \left[e^{-\frac{h(q_{|P})}{k_B T}} \right]^{N}$$

$$Q_N(T, V) = \frac{1}{h^{3N}} \int e^{-\frac{H(q_{|P})}{k_B T}} d^{3N}q \, d^{3N}p$$

$$Q_N(T, V) = \left[\frac{1}{h^3} \cdot \int e^{-\frac{h(q_{|P})}{k_B T}} d^3q \, d^3p \right]^{N}$$

$$|||$$

$$Q_N(T, V) = \left[Q_1(T, V) \right]^{N}$$

$$\boxed{Q_N(T, V) = \left[\frac{1}{h^3} \int e^{-\frac{h(q_{|P})}{k_B T}} d^3q \, d^3p \right]^{N}}$$

FISIKA : SISTEMA
BALDINTZA EIPERIMENTALAK

OSARAILEAK : hipotesiak