[nex72] **Structure function of harmonic oscillator II.**

Consider the classical harmonic oscillator,

$$H = \frac{p^2}{2m} + \frac{1}{2} m\omega_0^2 q^2.$$

Use the recursion method with inner product $(A, B) = \langle AB \rangle$ to calculate the structure function $S_{qq}(\omega)$ for the position variable at temperature T, where $\langle p^2 \rangle / 2m = \frac{1}{2} m\omega_0^2 \langle q^2 \rangle = \frac{1}{2} k_B T$, according to the equipartition theorem.