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$$\frac{d\langle\hat{X}\rangle}{dt}=\langle\frac{\partial\hat{X}}{\partial t}\rangle+\frac{1}{i\hbar}\langle[\hat{X},\hat{H}]\rangle=\frac{1}{i\hbar}\langle\left[\hat{X},\frac{\hat{P}_x{}^2}{2m}+\frac{1}{2}m\omega^2\hat{X}^2+V_0\hat{X}^3\right]\rangle=\frac{1}{i\hbar}\langle\left[\hat{X},\frac{\hat{P}_x{}^2}{2m}\right]\rangle=\frac{1}{i\hbar 2m}\langle 2\hat{P}_x\rangle=\frac{\langle\hat{P}_x\rangle}{m}$$

$$\frac{d\langle\hat{P}_x\rangle}{dt}=\langle\frac{\partial\hat{P}_x}{\partial t}\rangle+\frac{1}{i\hbar}\langle[\hat{P}_x,\hat{H}]\rangle=\frac{1}{i\hbar}\langle\left[\hat{P}_x,\frac{\hat{P}_x{}^2}{2m}+\frac{1}{2}m\omega^2\hat{X}^2+V_0\hat{X}^3\right]\rangle=\frac{1}{i\hbar}\langle\left[\hat{P}_x,\frac{1}{2}m\omega^2\hat{X}^2+V_0\hat{X}^3\right]\rangle$$

$$=-\langle m\omega^2\hat{X}+3V_0\hat{X}^2\rangle=-m\omega^2\langle\hat{X}\rangle-3V_0\langle\hat{X}^2\rangle$$

$$\frac{d\langle\hat{H}\rangle}{dt}=\langle\frac{\partial\hat{H}}{\partial t}\rangle+\frac{1}{i\hbar}\langle[\hat{H},\hat{H}]\rangle=0$$

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