

PHYS 451: Quantum Mechanics I – Spring 2017**Quiz #2**

A particle of mass m sits in the ground state of the harmonic oscillator with frequency ω . At some moment of time the spring constant quadruples *instantaneously*, so the new frequency becomes $\omega' = 2\omega$. After that, a measurement of the energy is made. Determine the probabilities of measuring the following values:

(a) $\frac{1}{2}\hbar\omega$

(b) $\hbar\omega$

(c) $\frac{3}{2}\hbar\omega$

(d) $2\hbar\omega$

(e) $\frac{5}{2}\hbar\omega$