

Name: _____

Physics 220, Quiz 7
3/19/09

1. Label each formula below according to whether it describes the 1D rigid box (infinite square well) or the simple harmonic oscillator:

$$E_n = \left(n + \frac{1}{2}\right) \hbar\omega_c$$

$$E_n = n^2 \frac{\pi^2 \hbar^2}{2ma^2}$$

$$\psi(x) = \sqrt{\frac{2}{a}} \sin \frac{n\pi x}{a}$$

$$\psi_1 = A_1 \frac{x}{b} e^{-x^2/2b^2}$$

2. In the expression $E_n = \left(n + \frac{1}{2}\right) \hbar\omega_c$, what is the value of n that corresponds to the ground state?

3. What, physically, does b represent in the expression $\psi_1 = A_1 \frac{x}{b} e^{-x^2/2b^2}$?