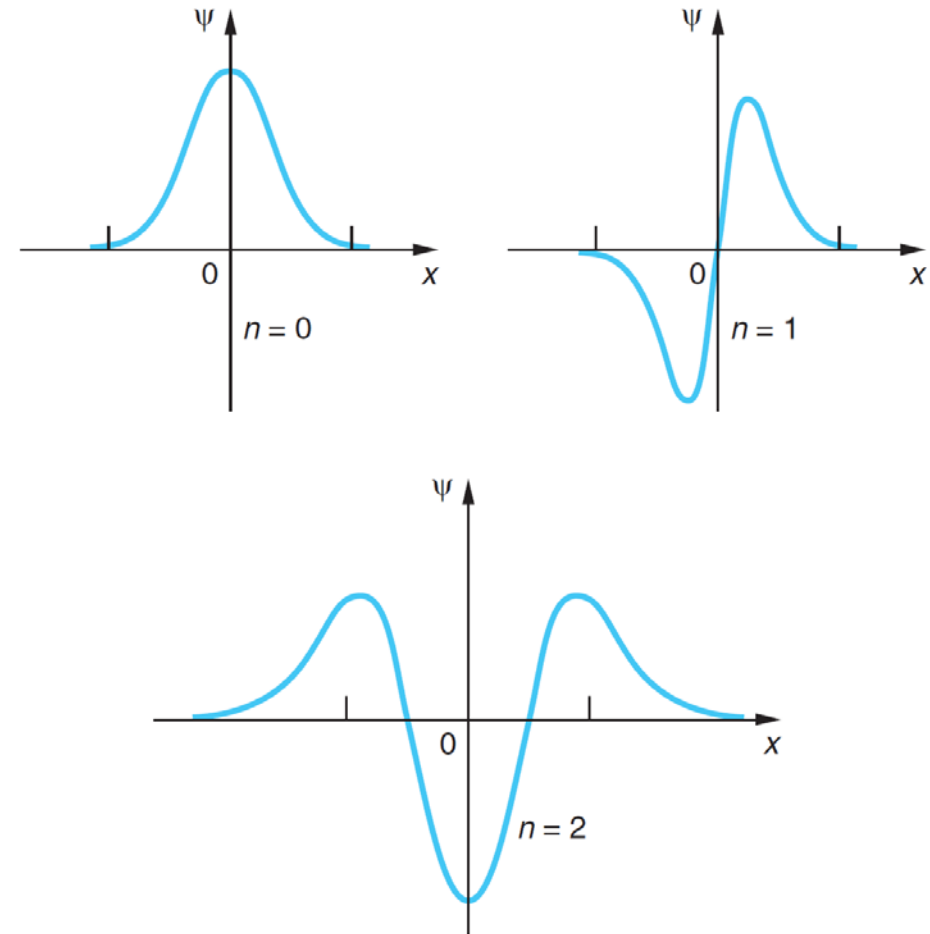
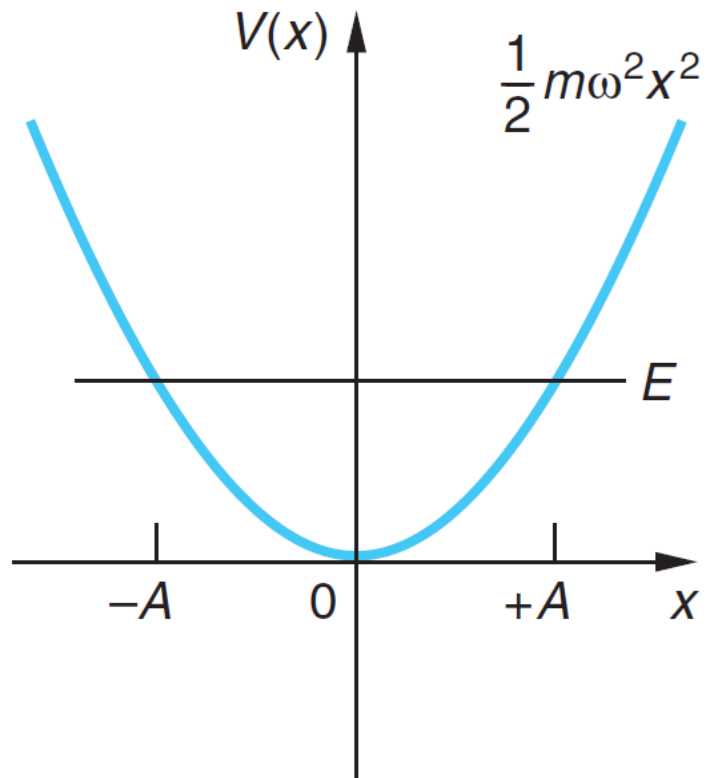
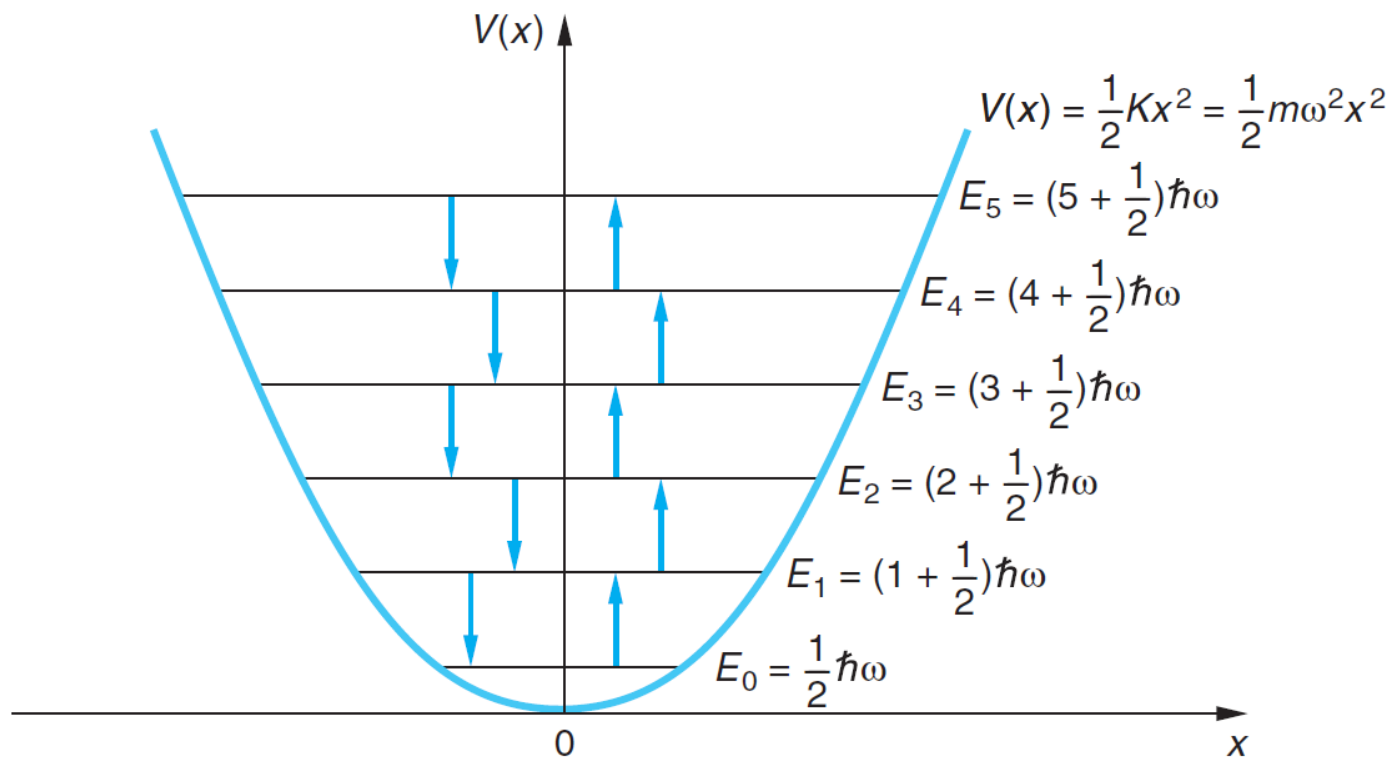
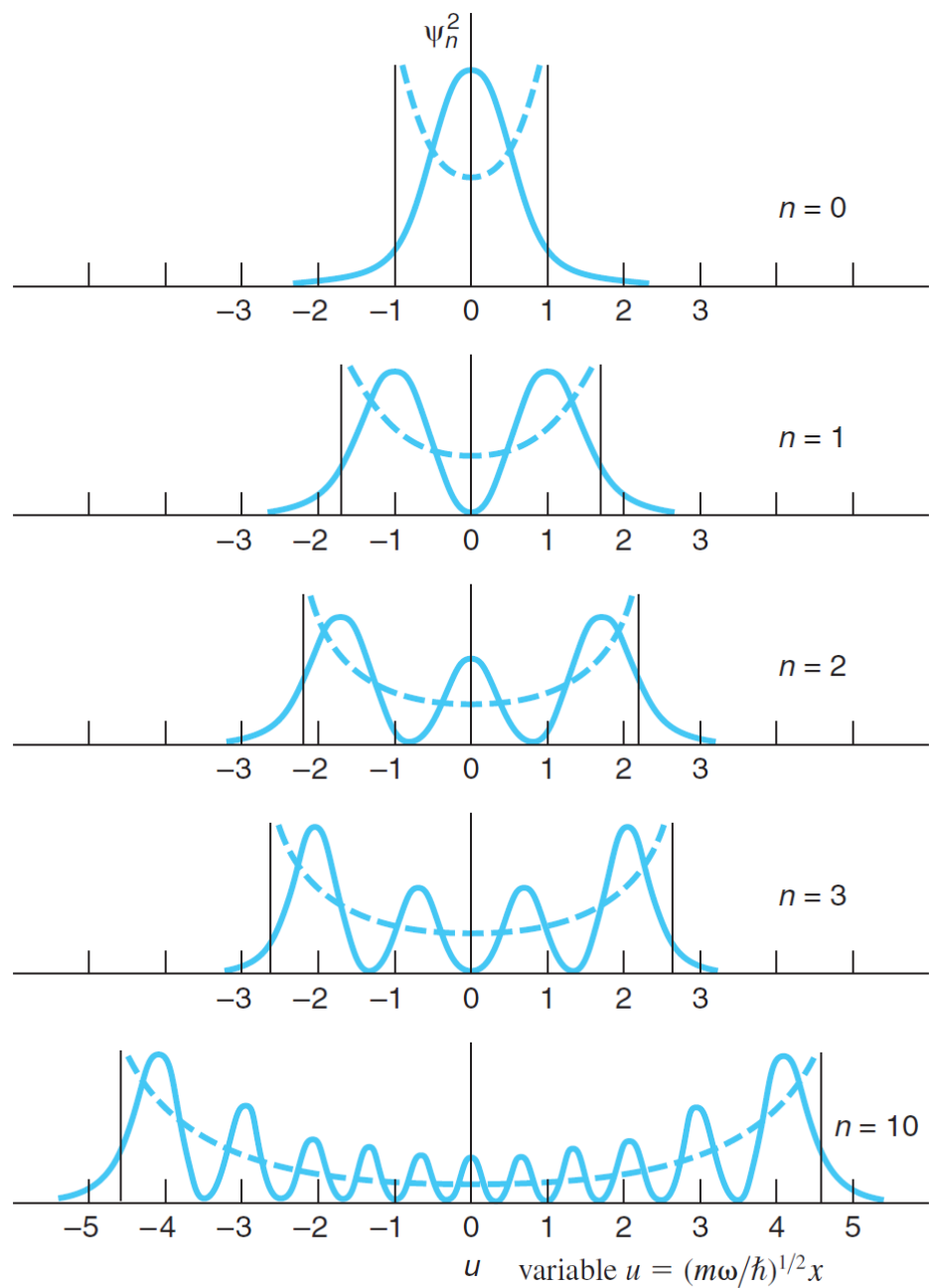


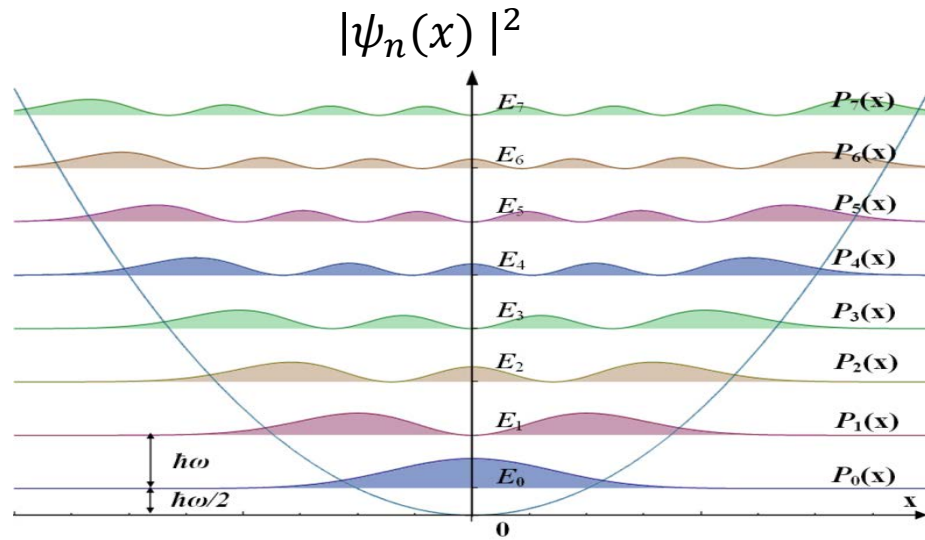
# Harmonic Oscillator



$$-\frac{\hbar^2}{2m} \frac{\partial^2 \psi(x)}{\partial x^2} + \frac{1}{2} m \omega^2 x^2 \psi(x) = E \psi(x)$$

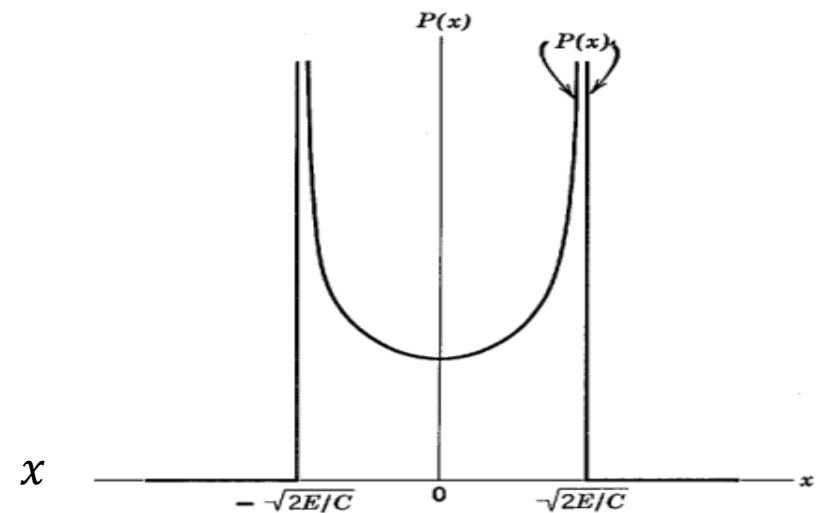
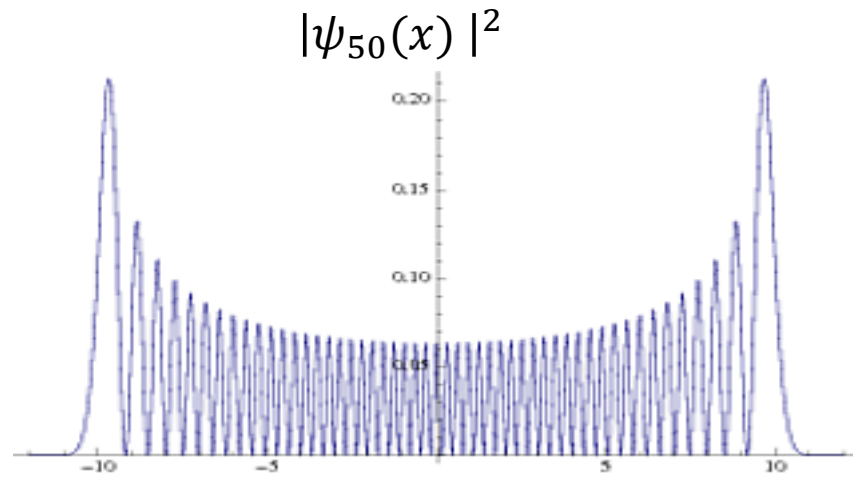


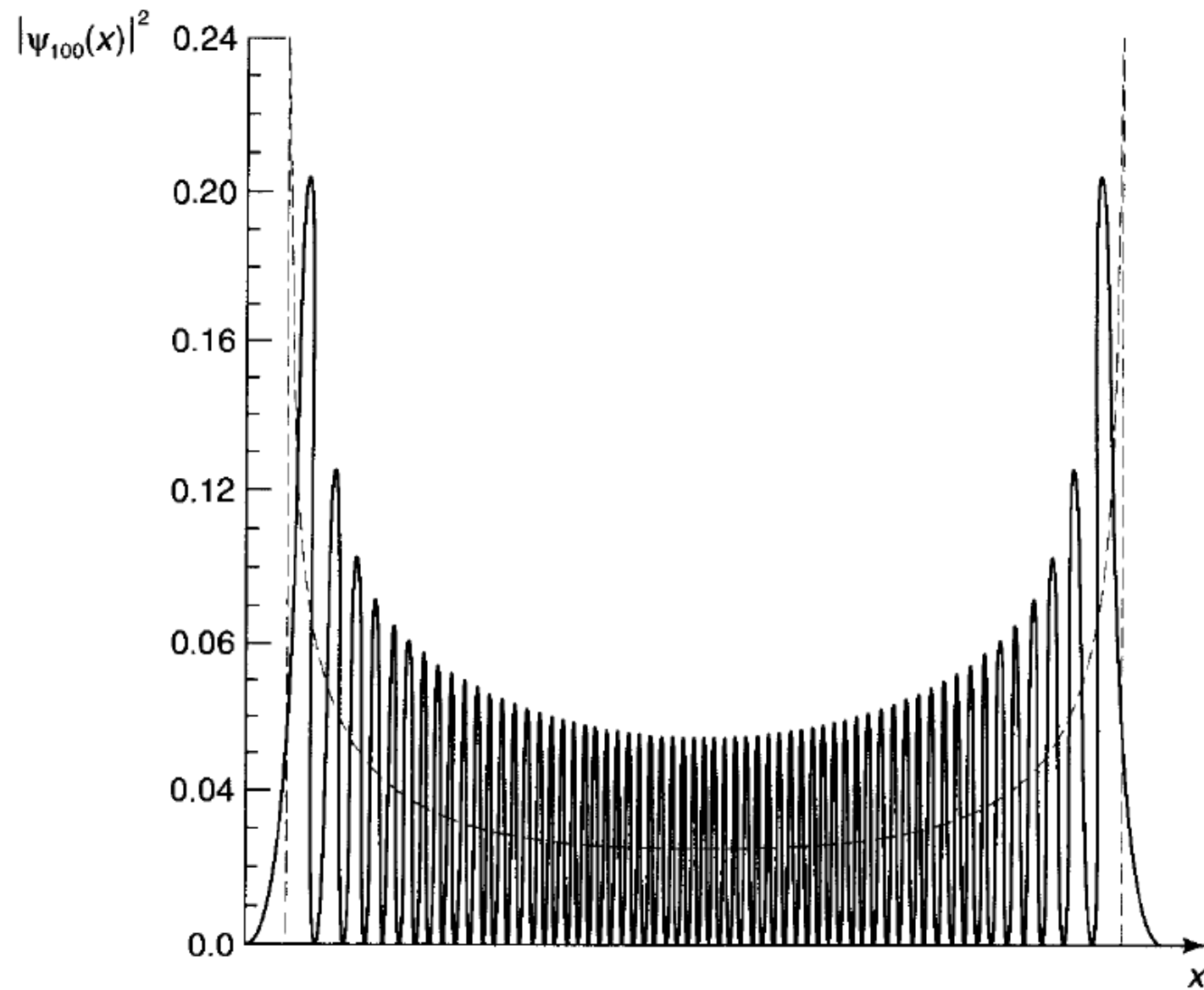
# Harmonic Oscillator Probability Densities



<http://photo.photobelt.com/gallery/Harmonic-Motion/G0007topLmT3rc/G0000eyd3T1zw>

Classical harmonic Oscillator probability  $P(x)$





(b)

**Figure 2.5:** (a) The first four stationary states of the harmonic oscillator.  
(b) Graph of  $|\psi_{100}|^2$ , with the classical distribution (dashed curve) superimposed.