UNIVERSITY OF CALIFORNIA, SANTA
Department of Physics

Physics 115A
Prof. Rollin J. Morrison

FINAL EXAM (con't.)

5. A particle of mass m is in a one-dimensional potential $V(x) = \frac{1}{2}kx^2$ for $x > 0$ and $V = \infty$ for $x < 0$.

   (a) What is the boundary condition on $\psi(x)$ at $x = 0$?

   (b) Write the time-independent Schrödinger equation for the region $x > 0$.

   (c) Find the solutions to your equation of part (b) which satisfy the condition of part (a).

   (d) What are the possible energies of this system?