## J98Q.2-Two Delta-function Potential

## Problem

A particle of mass $m$ moves in one dimension subject to the potential

$$
V(x)=-a \delta(x+L)+a \delta(x-L), a>0
$$

The system has one bound state.
a) Derive a transcendental equation relating the energy of the bound state to $m, a$, and $L$.
b) Calculate the energy of the bound state to leading order for small $L$, and sketch the wave function.

