Solution

1. Which has more bound states?

a. particle in a finite well
b. particle in an infinite well
c. both have the same number of bound states.

A particle in an infinite well has an *infinite* number of states.

2. For a particle in a *finite* square well, which of the following will *decrease* the number of bound states?

a. decrease well depth U_0
b. decrease well width L
c. decrease m, mass of particle

All three choices are correct:
a makes fewer energy levels have $E < U_0$.
b and c raise the energy of each energy level.

NOTE: For a particle in a 1-dimensional potential well, there is *always* at least one bound state.