HW 3 Hints

Problem 1.

To determine bound state use the condition $E_{n,max} < V_o$ and determine n_{max}. After that list all the E_1, …
E_{max}.

Problem 2.

Because the above formula was derived under the assumption that the WKB wave function leaks into the $x < x_1$ region (x1 is the turning point). In the given problem the wave function must strictly vanish at $x \le x_1 = 0$. One can use the potential $V(x) = mg|x|$, $-\infty < x < \infty$ and consider only the odd-partity solutions.

Problem 3.

Note the potential is 0 inside L, so only the kinetic term remains.

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Problem 4.   —

First normalize the eigenfunction phi using $\int_0^\infty y^n e^{-y}\, dy = n!$

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