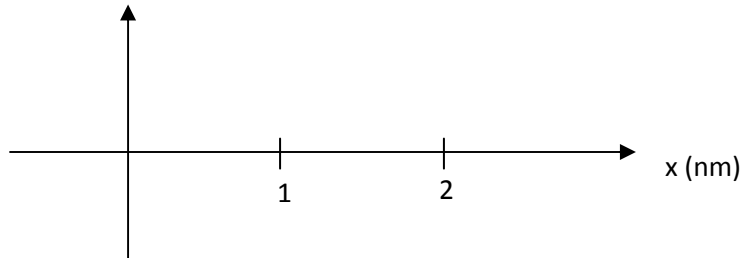


1. a) Using the axes below, sketch the spatial part of the  $n=4$  wavefunction  $\psi(x)$  for a particle in a 1D rigid box (infinite square well) of length 2 nm.



b) The  $n=4$  state is the \_\_\_\_\_ excited state. (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, ...)

c) What do  $a$  and  $m$  represent in the energy-level equation (below) for a particle in the 1D rigid box?

$$E_n = n^2 \frac{\pi^2 \hbar^2}{2ma^2}$$