Probability *Density*

In the infinite well: $P(x) = N^2 \sin^2\left(\frac{n\pi}{L}x\right)$. (Units are m^{-1}, in 1D)

Notation: The constant is typically written as "N", and is called the "normalization constant". For the square well:

$$N = \sqrt{\frac{2}{L}}$$

One important difference with the classical result:

For a classical particle bouncing back and forth in a well, the probability of finding the particle is equally likely throughout the well.

For a quantum particle in a stationary state, the probability distribution is not uniform. There are "nodes" where the probability is zero!