For these questions, use the simulation "Classical probability density of a particle in a box" and work through the simulation, including the step-by-step exploration.

a) Explain the shape of the graphs of $K(x)$ and $P_{cl}(x)$ inside the box as shown in the simulation.

b) Using the simulation, describe how the graphs of $K(x)$ and $P_{cl}(x)$ change as you vary the width of the box. Explain your observations.

c) Investigate the effect of changing the particle's speed on the graphs of $K(x)$ and $P_{cl}(x)$. Briefly explain your observations.

d) Consider a classical particle moving at speed v_0 in a box of width $3L$. What is the probability of finding the particle in the region between 0 and L? Does this probability change if the particle's speed is doubled to $2v_0$?

e) Is it more probable to find a particle of speed v_0 between 0 and L in a box of width $2L$ or a particle of speed $2v_0$ between 0 and $2L$ in a box of width $3L$?