

PHYS 222 Classical Mechanics II (Spring 2019)
Quiz #5

Consider the vibration of a continuous string attached to the wall at $x = 0$ and $x = L$. The wave propagation velocity $v = \sqrt{\tau/\rho}$ is given.

- (a) The initial conditions are: $\dot{q}(x, 0) = 0$ and $q(x, 0) = C \sin \frac{3\pi x}{L}$. Resolve the solution into normal modes.
- (b) The initial conditions are: $\dot{q}(x, 0) = 0$ and $q(x, 0)$ is depicted below. What is the frequency of the dominant vibrational mode? It is helpful to think about the symmetry here.

