\[ \frac{d^2 x}{dt^2} = -kx \]

\[ ma = -kx \]

PS 10 Read 1.

Moving and Standing Waves.

- Traveling Waves
- Longitudinal Waves
- Transverse Waves

Waves - Sound, Piano String, Tension, and Frequency.
mass of string:

\[ \frac{1}{4} \pi D^2 \cdot L \approx 10^{-9} \text{ m}^3 \]

\[ \frac{1}{4} \pi D^2 \cdot L \approx 10^{-6} \text{ m}^3 \]

\[ \text{mass} = 0.01 \text{ kg} \]

\[ \text{mass of 10 pieces of metal} \approx 1.5 \times 10^{-6} \text{ kg} \]

One string:

\[ \text{frame} = 260 \text{ Hz} \]

\[ T \text{ (tension)} \]

\[ \text{metal} \]

\[ L \]
\[ F = 260 \, \text{N} = 260 \, \text{kg} \cdot \text{m/s}^2 \]

\[ M = 0.10 \, \text{kg} - 0.002 \, \text{kg} \approx 0.098 \, \text{kg} \]

\[ L = 1 \, \text{m} \]