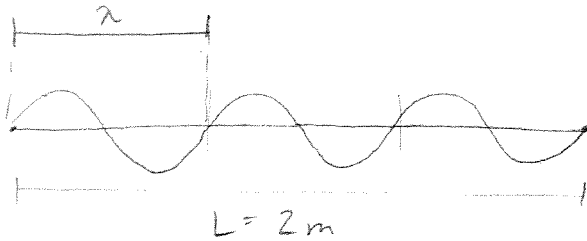


P #40a

Ch 14 - pg 458

$$\begin{aligned} L &= 2.0 \text{ m} \\ F &= m \cdot g = (5.0 \text{ kg})(9.8 \text{ m/s}^2) \\ &= 49 \text{ N} \\ f &= 150 \text{ Hz} \end{aligned}$$



From the diagram,  $\lambda = \frac{1}{3}L$

$$\lambda = \frac{2.0 \text{ m}}{3} = .67 \text{ m}$$

$$\begin{aligned} v &= \lambda \cdot f \\ &= (.67 \text{ m})(150 \text{ Hz}) \end{aligned}$$

$$v = 100 \text{ m/s}$$

$$v = \sqrt{\frac{F}{\mu}} \quad \text{so} \quad (100 \text{ m/s}) = \sqrt{\frac{49 \text{ N}}{\mu}}$$

$$\mu = .0049 \text{ kg/m}$$