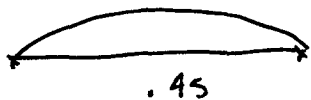


$$1. \quad \mu = \frac{.00410}{.550} = .007455$$



$$L = \lambda/2 \quad \lambda = .90 \quad f = 440$$

$$v = f\lambda = (440)(.90) = 396 \text{ m/s}$$

$$v = \sqrt{\frac{T}{\mu}} \quad T = \mu v^2 = (.007455)(396)^2 = \underline{\underline{1169 \text{ N}}} \text{ (a)}$$



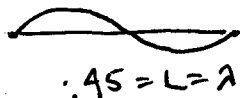
$$\frac{\lambda}{4} = L \quad L = 4\lambda$$

$$v = f\lambda$$

$$340 = 440\lambda$$

$$\lambda = .7727$$

$$\underline{\underline{L = .193 \text{ m}}} \text{ (b)}$$



$$v = f\lambda \quad 396 = f(.45) = \underline{\underline{880 \text{ Hz}}} \text{ (c)}$$

$2 \times f_{\text{fund}}$



$$\frac{3\lambda}{4} = L$$

$$v = f\lambda \quad 340 = f\left(\frac{4}{3}(.193)\right) = \underline{\underline{1320 \text{ Hz}}} \text{ (d)}$$

$3 \times f_{\text{fund}}$