$$v_{\text{string}} = \sqrt{\frac{F_T}{\mu}} = 149.07 \text{ m/s}, \quad \lambda_3 = \frac{2}{3}\left(2.00 \text{ m}\right) = 1.33 \text{ m}, \quad f_3 = \frac{149.07 \text{ m/s}}{1.33 \text{ m}} = 112.08 \text{ Hz}$$

$$\lambda_1 = 2L = \frac{v}{f_1}, \quad L = \frac{v}{2f_1} = \frac{343 \text{ m/s}}{2\left(112.08 \text{ Hz}\right)} = 1.53 \text{ m}$$