## Answer on Question \#61414-Physics-Other

A soft rope that weight 2.0 pounds is stretched by the force of 150 lbf a wave is started down the rope by plucking it. What is the speed of the wave in $\mathrm{m} / \mathrm{s}$

## Solution

We need to know the length of the rope to find the linear density of the rope. So, let it be 1 m .

$$
v=\sqrt{\frac{F}{\mu}}=\sqrt{\frac{F l}{m}}=\sqrt{\frac{150 \cdot 4.448222 \mathrm{~N}(1 \mathrm{~m})}{2.0 \cdot 0.453592 \mathrm{~kg}}}=27 \frac{\mathrm{~m}}{\mathrm{~s}} .
$$

Answer: $27 \frac{\mathrm{~m}}{\mathrm{~s}}$.

