

Standing Wave Lab

Materials: meter stick, digital scale, standing wave kit

Instructions:

1. Find the mass of the motor unit and calculate the force gravity. Assume the force gravity of the motor unit is the same as the tension in the string. Tension: _____ N
2. Establish a standing wave on the string. Measure the length of the string required to reach the standing wave: _____ m
3. Again, establish the standing wave and then measure the distance between nodes. Multiply this distance by two to obtain the wavelength: _____ m
4. Find the mass of the string used to create the standing wave: _____ kg
5. Find the linear density of the string with $\mu = (\text{mass}/\text{length}) =$ _____ kg/m
6. Calculate the velocity of the wave disturbance using $v = \sqrt{\text{tension}/\mu} =$ _____ m/s
7. Calculate the frequency of the wave disturbance using $v = \text{frequency} * \text{wavelength}$: _____ Hz
8. What were some potential sources of errors in your experiment?