



PHYS 3317: Dimensional Analysis

Hand in at beginning of next lecture

Problem 1.

1.1. A string is tied between two posts. It has linear density λ (units kg/m) and tension τ (units N). Use dimensional analysis to estimate the transverse speed of sound in the string.

Solution 1.1.

1.2. An iron rod has linear density λ (units kg/m), bending module μ (units Pa) and diameter a (units m). Use dimensional analysis to estimate the transverse speed of sound in the rod

Solution 1.2.



1.3. A stout cable has linear density λ (units kg/m), bending module μ (units Pa), diameter a (units m), and tension τ (units N). Use dimensional analysis to find a functional form for the transverse speed of sound

Solution 1.3.

1.4. What happens to the speed of sound if we double both μ and τ ?

Solution 1.4.