Problem 1.

1.1. A string is tied between two posts. It has linear density $\lambda$ (units kg/m) and tension $\tau$ (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 $\lambda$ (units kg/m), bending module $\mu$ (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 $\lambda$ (units kg/m), bending module $\mu$ (units Pa), diameter $a$ (units m), and tension $\tau$ (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 $\mu$ and $\tau$?

Solution 1.4.