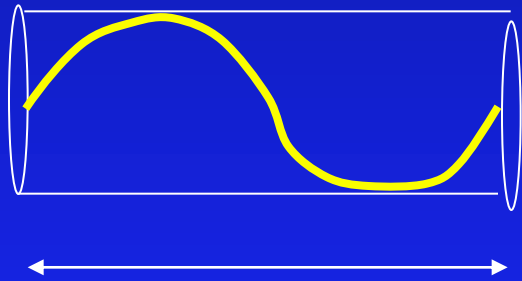# Organ Pipe Example

A 0.9 m organ pipe (open at both ends) is measured to have its first harmonic at a frequency of 382 Hz. What is the speed of sound in the pipe?

Pressure Node at each end.

$\lambda = 2 \, L \, / \, n$ n=1,2,3..

$\lambda = L$ for first harmonic (n=2)

$f = v \, / \, \lambda$

$v = f \, \lambda = (382 \, s^{-1}) \, (0.9 \, m)$

$= 343 \, m/s$