Example

$2.5\lambda = L = 1.2\,m$

$f = 30\,Hz$

Find λ

$2.5\lambda = 1.2\,m$

$\lambda = \frac{1.2\,m}{2.5}$

$\lambda = 0.48\,m$

Find V

$V = \lambda \cdot f$

$V = (0.48\,m)(30\,Hz)$

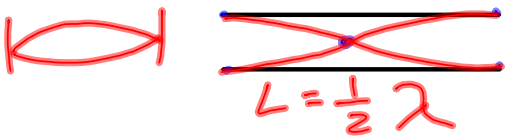
$V = 14.4\,m/s$

Different Types of Standing Waves

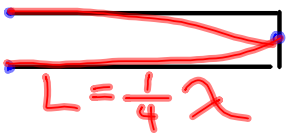
open/open

open/closed

closed/closed



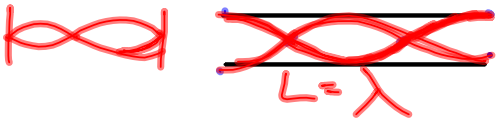
$L = \frac{1}{2}\lambda$



$L = \frac{1}{4}\lambda$

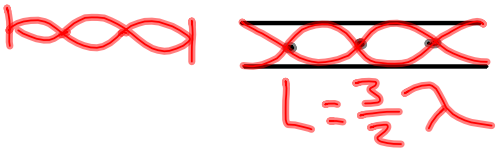
Node on Fixed/closed end

Antinode on Open/loose end

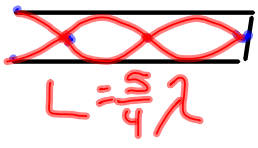


$L = \lambda$

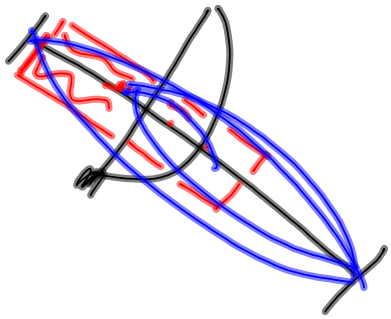
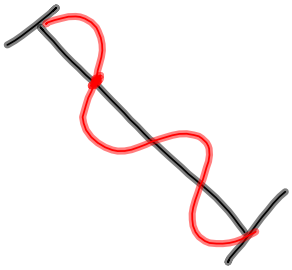
$L = \frac{3}{4}\lambda$



$L = \frac{3}{2}\lambda$



$L = \frac{5}{4}\lambda$

Resonance =
When the driving force matches the natural frequency

$V = f\lambda$ ↓