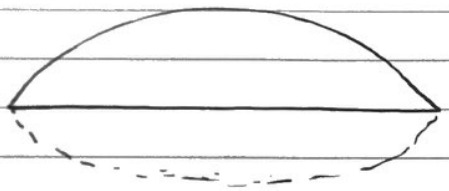
Interference & Standing Waves 2/14

Warm up:

A 3m long rope is shaken.
The fundamental frequency is 0.3 Hz.

1. Draw & label nodes, antinodes, harmonics
2. Calculate wavelength.
3. Calculate frequency.
4. Calculate velocity.

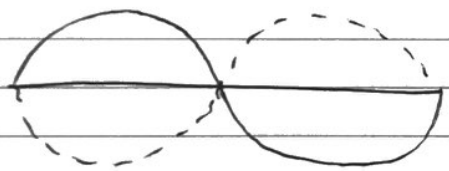
$L = \frac{h}{2}\lambda$



1st harmonic $3 = \frac{1}{2}\lambda$

$6m = \lambda$

frequency: 0.3 Hz
$V = f\lambda$ $(.3)(6) = 1.8$



2nd harmonic $3 = \frac{2}{2}\lambda$

$3m = \lambda$

frequency: 0.6 Hz
$V = f\lambda$ $V = (.6)(3) = 1.8$

3rd harmonic $3 = \frac{3}{2}\lambda$

$2m = \lambda$

frequency: 0.9 Hz
$V = f\lambda$ $V = (0.9)(2) = 1.8$

frequency: 1.2 Hz $3 = \frac{4}{2}\lambda$

$V = f\lambda$ $V = (1.2)(1.5)$ $1.5m = \lambda$

1.8