PAS: photo acoustic spectroscopy

$\frac{2\lambda_2}{2} = L \Rightarrow \lambda_2 = \frac{2L}{2}$

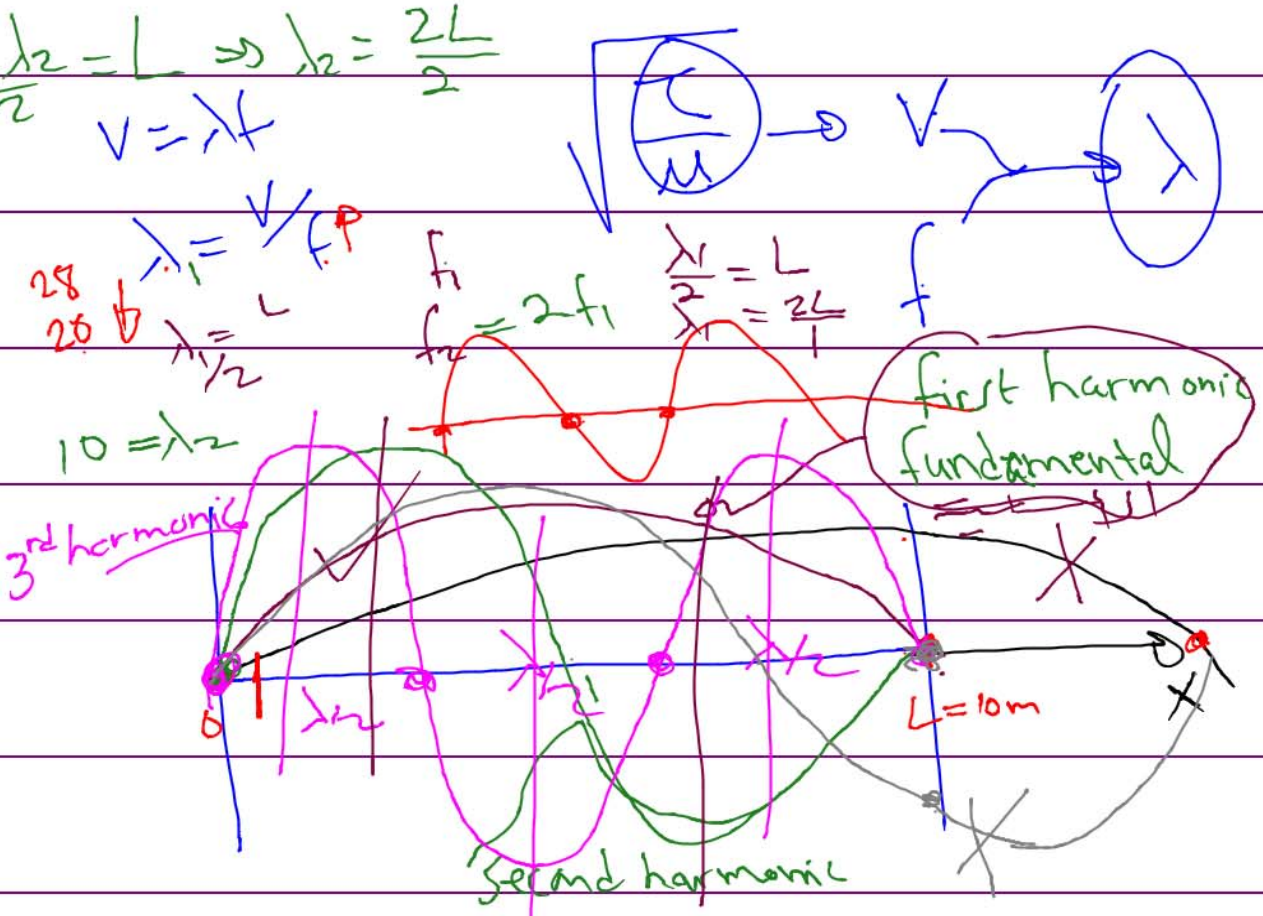
$V = \lambda f$

$\lambda_1 = V/f$

28
20

$\lambda_{1/2} = L$

10 $= \lambda_2$



$3\,\lambda_{3/2} = L$

$\lambda_3 = \frac{2L}{3}$

n : integer

$\lambda_n = \frac{2L}{n}$

$f_1 = \frac{1V}{2L} = \frac{V}{2L}$

$\lambda_n f_n = V$

$f_2 = 2 f_1$

$f_n = \frac{V}{\lambda_n} = \frac{nV}{2L}$

$f_3 = 3 f_1$

$f_n = n f_1$

$f_1 = 16$ Hz

$f_3 = 48$ Hz

$f_{10} = 160$ Hz

$\frac{20}{22}$ off resonance

$= n f_1$

$\lambda_7 = \frac{2L}{7}$

distance between nodes = $\frac{\lambda_7}{2} = \frac{L}{7}$

$\frac{0.5}{7} = 0.071$

$L = 0.75\ m$

$n = 3$

$V = 10\ m/s$

$D = \frac{\lambda_3}{2} = 0.25m = 25\ cm$ ✓

$\lambda_3 = \frac{2L}{3} = 0.5\ m$