P #60

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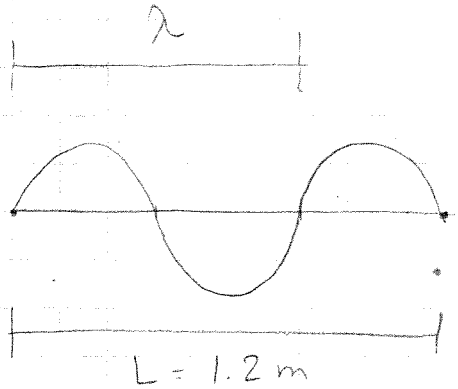
$L_{air} = 34\,cm = .34\,m$

$L_{wire} = 120\,cm = 1.20\,m$

$V_{air} = 340\,m/s$

$V_{wire} = ?$



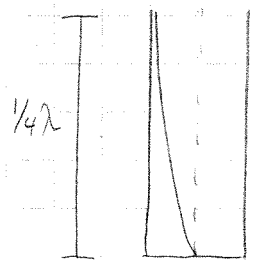
For 3rd Harmonic: (Wire)

$\lambda_{wire} = \frac{2}{3} \cdot L$

$= \frac{2}{3} \cdot (1.20m)$

$\lambda_{wire} = .80\,m$

For fund. frequency (Air)



$\lambda_{air} = 4 \cdot L$

$= 4(.34m)$

$\lambda_{air} = 1.36\,m$

$f_{air} = f_{wire}$

$\frac{V_{air}}{\lambda_{air}} = \frac{V_{wire}}{\lambda_{wire}}$

$\frac{(340\,m/s)}{(1.36\,m)} = \frac{V_{wire}}{(.8\,m)}$

$V_{wire} = 200\,m/s$