

travelling wave $\frac{2\pi}{\lambda} = k$ $\frac{2\pi}{T} = \omega$

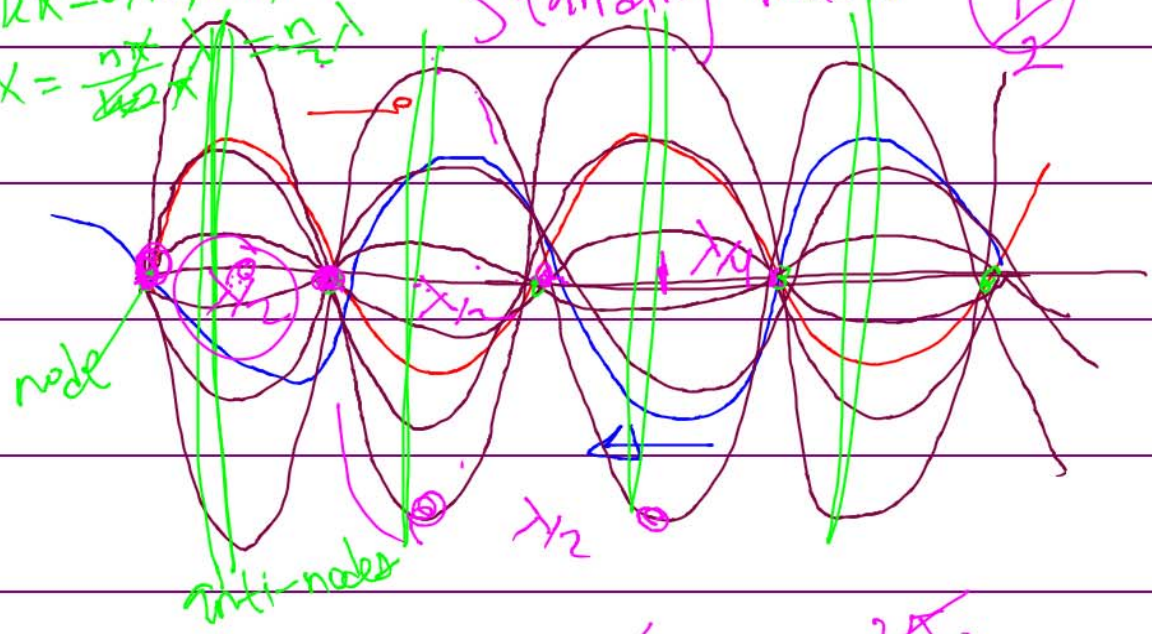
$$Y_1(x,t) = Y_m \sin(kx - \omega t) \rightarrow$$

$$Y_2(x,t) = Y_m \sin(kx + \omega t) \leftarrow$$

$$Y_{res} = Y_1 + Y_2 = 2 Y_m \sin kx \cos \omega t$$

$kx = 0, \pi, 2\pi, n\pi$
 $x = \frac{n\pi}{k} = \frac{n\lambda}{2}$

Standing waves $\frac{T}{2}$



$$\frac{2\pi}{T} \omega \Delta t = \frac{2\pi}{\lambda} \Delta x$$

$$\Delta t = T$$